LITERATURE OF MANUFACTURERS

Catalogues, bulletins and other direct advertising material recently issued.

Manufacturers are requested to send copies of new trade literature promptly to Electric Refrigeration News.

American Radiator

Domestic cooling units in lengths of 11, 13 and 15 inches, each produced in both end and center sections so that assemblies can be made of various heights such as two or more tiers, or tiers of any combination of these heights, are described in a catalog published by American Radiator Co., Industrial Division, 816 S. Michigan Ave., Chicago, Ill. These units are furnished either in black iron or galvanized. All galvanized units are equipped with brass plugs and bushings per specifications as to size of bushing, tapping and location.

Automatic Refrigerating

Bulletin 1A of Automatic Refrigerating Co., 618 Capitol Ave., Hartford, Conn., shows an automatic water regulator and an automatic series expansion valve to be used in refrigerating plants. The regulator limits the amount of water used to exact requirements of the plant. The expansion valve operates from a spring balanced diaphragm and can be set to control back pressure from any pressure desired to several inches vacuum. It can be adjusted as required for seasonal weather conditions.

Bozman

Display cases for meats, with outside illumination, are illustrated in a folder issued by R. H. Bozman & Bros., 1050 Granby St., Baltimore, Md. These cases have a double coil system, one set of coils being in the top and another set under the shelf.

Century

Direct current motors, double squirrel cage induction 3- and 2-phase motors, split phase induction motors, and repulsion-start induction single phase motors are illustrated in colored folders published by Century Electric Co., 1806 Pine St., St. Louis, Mo. Century motors are designed for use with electric refrigerating machines, oil burners, pumps, compressors, etc.

Federal

"Booster" line of commercial refrigerators, which has recently been added as a companion to the "Federal" line, is illustrated in drawings issued by Federal Refrigerator Co., Milwaukee, Wis. Eight models make up the "Booster" line, ranging in price from $300 to $470. Model 401 display counter is also shown. It is a floor type, having narrow coil bunkers so as to give maximum display.

Fulton

Bulletin No. 150, of Fulton Sylphon Co., Knoxville, Tenn., describes regulators for controlling temperatures of liquids for refrigerating purposes. Regulator bulbs are made of seamless brass tubing, the metal is thin, permitting a quick response to temperature changes. Most Sylphon regulators will open wide and close with a 5 to 8 degree temperature change.

Gaus

Porcelain Electricase display cases and refrigerators are shown in a catalog issued by Gaus Mfg. Co., 2130 N. Main St., St. Louis, Mo. Same size doors, hinges, door fasteners, shelves, (shelves being built in sections), walls, (containing same grade of corkboard), and flood lights are used on the 9-foot display case as are used on the 13-foot model. The white porcelain is in standard size panels. Electricase refrigerators are also standard throughout, having all hardware triple nickel plated, corkboard insulation and odorless kiln-dried linings of cypress lumber.

KitchenAid

KitchenAid, an electrical food preparer for the home, is shown in a small folder issued by KitchenAid Mfg. Co., Troy, Ohio. More than a dozen kitchen appliances can be attached to this food preparer without the use of excessive force or tools. KitchenAid is 16⅜ inches high, 10⅞ inches wide at base, 12¼ inches deep at base, and weighs 38½ pounds.

Lewis Asphalt

Erection and protection of refrigeration insulation is covered in a leaflet issued by Lewis Asphalt Engineering Corp., 30 Church St., New York, N. Y. The booklet explains materials and procedure necessary to obtain a maximum efficiency in cold storage buildings.

Mercoid

Mercoid Corp., 564 W. Adams St., Chicago, Ill., shows thermostats for control of air temperatures in storage compartments and for control of brine and other liquid temperatures in catalog R-3. High pressure safety cut-out controls for ammonia, refrigeration panel units, low water controls, float switches, type 682 solenoid valve, and gauges for refrigeration application are also shown.

Reco

Reco electric milk cooling cabinets, manufactured by Domestic Utilities Division, Refrigeration Corp. of Md., Garrison Boulevard and Western Maryland R. R., Baltimore, Md., are displayed in an 8-page folder. Exterior of all Reco cabinets is of boiler plate, over ⅛ inch thick. The interior is lined with extra heavy copper alloyed steel. The cabinets have a milk cooling capacity that ranges from 20 to 160 gallons per day.

Refrigerated Ford Delivers Fresh Meat and Fish to Rural Customers

RURAL residents in a fifteen-mile radius of Perry, N. Y., are now receiving fresh meats and fish daily from Kenney's market in Perry via a Kelvinator-refrigerated Ford truck. This installation was made by the Co-operative Electric Co., Kelvinator dealers in Perry, operating under Rochester Electrical Supply Co., Rochester, N. Y.

A model F-11 condensing unit is mounted in the driver's compartment and cools a bank of coils in the storage compartment of the truck. These coils consist of ½" tubing in bends used as cooling units.

The compressor is geared to a drive shaft, which in turn is operated by the fan belt, the compressor running constantly while the car is in motion. However, the connection is so arranged that the belt from the drive shaft can be slipped off and the compressor connected to electric power for operation at night when the truck is idle and contains held-over storage.

The compressor is installed in the driver's compartment so that the condenser extends out beyond the body and the rush of air while the car is in motion acts as a cooling medium. The refrigerated body is insulated with 2 inches of corkboard and divided into two compartments, one for meats and the other for fish. Through the use of different amounts of tubing in the two compartments, two different temperatures are maintained.

Each morning the truck is loaded with meats and fish, and customers in the rural districts are supplied with products kept at 35 degrees F. In case the entire load is not sold in one day's trip, the Kelvinator is operated at night by electric power. This truck has been in operation since early in July, and besides proving mechanically satisfactory, has been a means of increasing market business.

REQUESTS FOR INFORMATION

Readers who can assist in furnishing correct answers to inquiries, or who can supply additional information, are invited to address Electric Refrigeration News, referring to the query number.

Foreign Prospects

Query No. 307—"Can you give me information pertaining to refrigerating units and parts suitable for import into Australia?"

Query No. 308—"One of our customers in the Argentine Republic is interested in the purchase of ice cube trays, 10" x 5½", with capacities for 28 cubes, for an electric refrigerator."

Isobutane and Butane

Query No. 309—"Would you please tell me the difference between isobutane and butane? In the July 17 issue of the NEWS you list them as having the same symbols $C_6 H_{10}$. In the test pressure you have:

Isobutane .....135 high, 100 low
Butane .....100 high, 50 low

Answer—H. A. Brysselbout, of the commercial sales department, Copeland Sales Co., Mt. Clemens, Mich., gives the following information:

Normal Butane
Chemical formula—C^4 H^{10}
Theoretical atomic structure—

```
                H H H H
CH3.CH2.CH2CH3 or H-C-C-C-C-H
                H H H H
```

At 16.9 lbs. pressure gauge, temperature is 70° Fah.
At 15" vacuum, temperature is 0° Fah.

Isobutane (Trimethyl Methane)
Chemical formula—C_4 H_{10}
Theoretical atomic structure—

```
                  H H H
(CH3)2. CH. CH3 or H-C-C-C-H
                  H | H
                  H-C-H
                    H
```

At 31.1 lbs. pressure gauge, temperature is 70° Fah.
At 6.3" vacuum, temperature is 0° Fah.

Water Coolers

Query No. 310—"Will you kindly inform me where I can procure information on water coolers to be used in connection with sulphur dioxide, flooded system type machines, capable of delivering a minimum of 60 gallons of cooled water at one time?"

Seeks Franchise

Query No. 311—"We are contemplating taking on a line of electric refrigeration, comprising both commercial and household. We are distributors of Philco radios and have quite a number of established accounts to whom we can sell. If you can refer us to several manufacturers, it will be appreciated."

Frigibloc

Query No. 312—"On page 15 of the October 23 issue of the NEWS, we noticed an interesting story and photograph of the "Frigibloc." Can you give us the address of the manufacturer of this refrigerating apparatus?"

Answer—This machine is made by l'Agence Commercial du Frigibloc, at Lyons, France, with a sales office at 4 Galerie Montpensier, Paris, France.

Rubber Ice Cube Trays

Query No. 313—"Will you kindly let us know from whom we can secure rubber ice cube trays for use in the cube drawers of General Electric refrigerators?"

Answer—G. M. Dwelley, Inc., 548 Curtis Bldg., Detroit, Mich.

Bake Oven

Query No. 314—"We are adding a service department for electric refrigeration and are desirous of obtaining specifications for a bake oven suitable for baking sulphur dioxide equipment."

Ice Cube Trays

Query No. 315—"Can you give me the name of a manufacturer who can furnish a tray 5" x 8½", with handles, for making ice cubes in a Seeger cabinet equipped with an electric unit?"

Reply to Previous Query

Answering Query No. 303 and others, who have expressed an interest in a device mentioned by Frank W. Gray, Western Sales Manager, Absopure Refrigeration Corp., in an article entitled "Some Interesting Developments in Commercial and Multiple Installations," which appeared in November 9 issue of the NEWS. The de-frosting device is the Tork Clock, manufactured by Tork Co., 12 East 41st St., New York City, N. Y.

Mr. Gray's statement follows: "An interesting automatic de-frosting device is being used to great advantage by some agencies on their multiple installations. This device consists merely of an electrical time switch, or torque clock, which operates electrically, requiring no winding, and which automatically cuts off the system for a few hours just after midnight, keeping all cooling coils on the system de-frosted and providing the maximum efficiency of refrigeration at all times. The writer has personally inspected a number of apartment houses which were de-frosted by this method, and has found that the cooling units were covered only by a thin skin of frost at all times. This practice also eliminates "back-frosting" and excessive running of the machine which is sometimes the result of coils being too heavily frosted."

Complete Iroquois electric refrigerating machines, factory tested and packed at $45.00. Write for descriptive booklet. H. LIPPMAN & BRO., 101 Walker St., New York City.

Patents Searches, reports, opinions by a Specialist in REFRIGERATION
H. R. VAN DEVENTER
Solicitor of Patents
Refrigeration Engineer
342 Madison Ave., N. Y.

THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance — Positions Wanted — fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion $3.00, additional words six cents each. Three insertions $8.00, additional words sixteen cents each.

POSITIONS AVAILABLE

SERVICE and installation men wanted in each town to install and service soda fountains, counters and cafeteria equipment by one of the leading soda fountain manufacturers. Refrigeration men, plumbers, take this opportunity to expand your business. State your qualifications, business connections and rates to Box No. 214.

MAN experienced in electric refrigeration who can install and service both sulphur dioxide and methyl chloride systems. Steady position to right party with firm in Pacific Northwest Give experience and references. Box 218.

REFRIGERATION ENGINEER—Must be technical graduate, experienced with non-ammonia refrigerants and competent to conduct volumetric efficiency, calorimeter, motor load and other tests. State experience and salary required. Also if prefer permanent or temporary consultant position. All information confidential. Box 207.

POSITIONS WANTED

WANT Permanent Southern or Southwestern Connection. Ten years in sales and sales management work. Last three years and at present with one G. E. distributor in Northern state. Experience in all phases of sales work—retail management, dealer and utility contact and salesmen training. Now employed. Box 216.

EXPERIENCED REFRIGERATION ENGINEER—Desires to get in touch with refrigeration manufacturer requiring the services of a chief engineer. Thoroughly versed in engineering, design and production methods. More than ten years' experience in electric refrigeration. Will consider any locality—Detroit or vicinity preferred. Address Box No. 217.

CHIEF ENGINEER, with ten years' electric refrigeration design, development, and production experience, wishes to get in touch with a manufacturer. Box 203.

YOUNG man, thoroughly experienced in sales, service and installation on electric refrigeration, wishes to connect with distributor as sales manager or represent manufacturer on the road. Experience also covers figuring apartment and commercial jobs complete. Have no objections to territory. References from former connections. Box 219.

MISCELLANEOUS

FOR SALE—One model Ten and one model Five Excelsior compressors in original factory crates. We have discontinued refrigeration and will sacrifice these new machines to move them before December 31st. Will accept any reasonable offer. Terms, 25 per cent with order, balance sight draft. Box No. 215.

FOR SALE—25 S-7 Servel refrigerators complete, in original crates. Retiring from business. Will accept reasonable offer. Box No. 212.

FOR SALE—State or entire U. S. rights for improved and proven ammonia pre-cooler for ice, ice cream, fruit pre-cooling and dairy plants. Sells for $250 to $375—marvelous results. Arrange for several states—manufacture on large scale. Blue prints, descriptive matter. Refrigeration Improved Appliance Co., Winter Haven, Fla.

FOR SALE—Miscellaneous Servel and Electrolux household and commercial equipment; greater part in original crates. Will accept reasonable offer. This is an opportunity to complete your stock on hand at great saving. Retiring from business. Enco Products Corporation, 698 Main St., Buffalo, N. Y.

Mechanical Engineering Instructors

Mechanical Research Engineers

Prominent and progressive manufacturer of domestic electric appliances in Ohio would like to add to its laboratory staff a Mechanical Engineer of the following qualifications: Mechanical Engineer. Preferably 1923 to 1926 graduate, age 23-28, married. Three to six years commercial laboratory or teaching experience would be admirable qualifications for this position. Advanced engineering degrees preferable but not essential. Applicant must be of analytical type of mind and naturally inclined toward research and development of domestic appliances, such as refrigerators, washing machines, vacuum cleaners, ironers, etc. Moderate starting salary but excellent future and permanent position is available for competent applicant. Box 213.

FOR EASTERN DEALERS
WE MAINTAIN THE LARGEST STOCK OF FITTINGS AND TUBING IN THE EAST. GET OUR CATALOGUE AND PRICES.
DOMESTIC UTILITIES
DIVISION OF THE REFRIGERATION CORP. OF MARYLAND
Plant and Offices—Arlington, Baltimore, Maryland

Subscription Order

ELECTRIC REFRIGERATION NEWS
550 MACCABEES BUILDING, DETROIT, MICH.

Please enter subscription to Electric Refrigeration News.

United States and Possessions:
☐ $2.00 per year. ☐ Three years for $5.00

All other Countries:
☐ $2.25 per year. ☐ Two years for $4.00

I am enclosing payment in the form of
☐ Check ☐ P. O. Order ☐ Cash

Name.....

Street Address.....

City and State.....

Remarks:.....

ELECTRIC REFRIGERATION NEWS

The business newspaper of the refrigeration industry

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ENGINEERS DEVOTE SERIOUS ATTENTION TO RESEARCH PLAN

Society Confers Honorary Membership on Prof. Frederick Keyes

PRIZES TO FOUR STUDENTS

New York, N. Y.—The annual meeting and twenty-fifth anniversary of the American Society of Refrigerating Engineers, held at the Hotel Pennsylvania, December 4-7, 1929, was better attended and more replete with interest and new ideas than any meeting held during recent years. In a long list of technical papers delivered by men prominent in the field of refrigeration, the trends of the past and the more recent developments in many applications of refrigeration were discussed. Seven sessions, in addition to entertainment events, were attended by 300 members, ladies and guests. At the banquet on December 6 the anniversary celebration was held, the principal feature being the induction into honorary membership of Dr. F. G. Keyes, of Cambridge, Mass. Dr. Georges Claude, of Reueil, France, was also cited for honorary membership, but he was unable to be present to receive the honor in person.

The convention opened with a luncheon on Wednesday, December 4, at which a special gavel made of many different varieties of insulating materials was presented to the Society by Pennsylvania State College. Colonel R. I. Rees of the American Telephone and Telegraph Co., recently elected president of the Society for the Promotion of Engineering Education, addressed the members on the co-ordination of the efforts of the engineering colleges and of industry in training young men.

Quick Freezing of Food

The opening address of the first regular session was by S. C. Bloom, consulting engineer of Chicago, who visualized "The Next Ten Years in Refrigeration," touching upon nearly every phase of the application of the art. Mr. Bloom first abstracted a previous paper in which predictions had been made, and proceeded to trace again the future as he sees it. He emphasized the possibilities of refrigeration in the realm of air conditioning, or cooling for the attainment of human comfort, as one of the important future fields for developments. Mr. Bloom also discussed the quick freezing of food, particularly as it applies to the packing business, and pictured the great economies which may be secured in comparison with the present methods of producing, transporting and merchandising food.

Frozen foods were further discussed by Clarence Birdseye of General Foods Corp., Gloucester, Mass., developer of the continuous method of freezing foods direct in packages, who explained one of the principal problems, that of cardboard containers as insulating material He pointed out that the container interferes initially with the freezing process, where foods are frozen in the package, but that tests have shown that it serves

(Continued on Page 4, Column 4)

DR. ANTHONY, PRESIDENT OF ELECTRO KOLD, DIES

Spokane, Wash.—Dr. X. L. Anthony, president of Electro Kold Corporation, died Friday, November 29, after an illness which had extended from early summer.

Dr. Anthony had been with Electro Kold Corporation since its inception but never took an active part in conducting the business. He devoted his time to the large medical practice which he developed in this district. Dr. Anthony was fifty-nine years of age at the time of his death.

No successor has yet been elected to fill the presidency of Electro Kold Corporation.

NEW CODE COMMITTEE IN WASHINGTON, D. C.

Washington, D. C.—A new committee in charge of the drafting of a refrigeration code for the District of Columbia, met December 12. It is reported that the national code sponsored by the American Society of Refrigerating Engineers, and the Chicago ordinance proposed by Health Commissioner Kegel, were considered as a basis for the new code.

The membership of the new committee is as follows: A. R. McGonagle, chief inspector of plumbing; W. E. Kern, electrical engineer; C. S. Cragor, Bureau of Standards, and Fire Marshall Achstetter.

See Directory in This Issue of 83 Makes

Eighty-three manufacturers of complete automatic refrigeration systems are listed in a special directory, which appears on pages 21, 22 and 23 of this issue. This directory contains specifications and sizes of machine and cooling units. A number of photographs of compressor models are included on these pages.

A directory of manufacturers of tools and equipment for production, service, material handling and testing also appears on pages 19 and 20.

Manufacturers listed in both of these directories are invited to send in corrections or additional information concerning their products to the Editorial Department immediately for publication in the Annual Catalog and Directory Number of the NEWS, January 1, 1930.

TEST PROVES ERROR IN GAS THEORY OF MEDICAL EXAMINER

Buffalo Deaths Due to Carbon Monoxide From Clogged Flue

Buffalo, N. Y.—That the asphyxiation of two persons, A. G. Wieckmann and his sister-in-law, Mrs. May Bernhard, was caused by carbon monoxide from a gas heater instead of escaping refrigerant, was proved by blood tests taken by City Chemist Edward J. Powers, Tuesday, December 3. Analysis of blood samples taken from the bodies showed 75 to 80 per cent carbon monoxide content.

The results of the tests caused Rocco N. DeDominicis, medical examiner, to reverse the decision he first made, "that the deaths were caused by a poisonous gas of some sort which came from the refrigerator." The doctor, in this preliminary announcement, said: "It was

(Concluded on Page 2, Column 5)

Annual Survey and Forecast in Next Issue

A survey of the refrigeration market, both in this country and abroad, statements by executives regarding the 1930 refrigeration outlook, and a complete directory of manufacturers of refrigeration systems, with specifications of equipment and executive personnel, also manufacturers of cabinets, parts, accessories, materials and related merchandise, will appear in the Annual Catalog and Directory number of the NEWS, January 1, 1930.

The survey includes foreign market data compiled by Electrical Equipment Division, Department of Commerce, a report by the Association of Edison Illuminating Companies on the desirability of electric refrigeration as a load builder, and a report of Public Utilities which shows the relation between refrigerators and other electrical appliances as load builders and as a source of sales revenue.

FRIGIDAIRE ACCEPTS INVITATION TO JOIN COOPERATIVE GROUP

Manufacturers Agree on Code Modifications

TO COLLECT STATISTICS

Detroit, Mich.—Agreement on modifications of the National Safety Code and the presence, for the first time, of representatives of the Frigidaire Corporation were the outstanding developments at a meeting of the Refrigeration Division, National Electrical Manufacturers' Association, held at the Book-Cadillac Hotel, Monday, December 9, 1929. An important action taken concerned the collection of production figures through the headquarters' organization and the releasing to the public of totals showing the industries' quarterly production of equipment in each major classification.

Leaders of the co-operative movement among manufacturers of refrigeration equipment have frankly admitted the handicap to the effectiveness of the organization due to the absence of so important a factor in the industry as the Frigidaire Corporation. Frigidaire was a participant in the preliminary meetings of manufacturers, which were held during 1925, and became a member of the Electric Refrigeration Council which was formerly organized at the Westchester Biltmore Hotel, Rye, New York, in January, 1926. Frigidaire withdrew from the Council just prior to a meeting held at Waldenwoods, near Detroit, Mich., in September, 1926, and, as a result, the Council failed to function. In the spring of 1928 a new organization was formed known as the Refrigeration Manufacturers' Council and early in 1929 this group became a division of the National Electrical Manufacturers' Association. A number of meetings have been held under the chairmanship of T. K. Quinn, general manager of the Refrigeration Department, General Electric Company.

The following were present at the Detroit meeting:

E. G. Biechler, R. E. Smithson and C. J. Jolly of Frigidaire Corp.; T. K. Quinn and R. A. Stevenson of the General Electric Co.; George W. Mason and C. C. Spreen of the Kelvinator Corp.; Louis Ruthenburg and Glenn Muffly of Copeland Products, Inc.; H. W. Foulds and E. T. Williams of Servel, Inc.; H. E. Blood and R. E. Densmore of the Norge Corp.; R. G. Nelson of Rice Products, Inc.; G. M. Johnston of Universal Cooler Corp.; R. W. Kritzer of Peerless Ice Machine Co.; J. E. Jernberg and L. C. Keeley of Zerozone Corp.; W. C. Rowles of Climax Electrical Refrigeration Co.; H. D. Edwards of A. S. R. E. and A. W. Berresford of N. E. M. A.

Columbia University Graduates Grading Essays in National Food Preservation Contest

These are the seven graduates of Teachers' College, Columbia University, New York City, all specialists in the refrigeration aspects of home economics, who did the preliminary work of sorting and classifying the essays entered in the National Food Preservation Essay Contest, held during the month of September. The prize winners have just been announced. (See article below).

FRIGIDAIRE ADDS LARGE CABINETS TO 1930 LINE

Dayton, O.—Widening its scope of operations still further, Frigidaire Corp. has announced a line of commercial refrigerator boxes, designed to meet the refrigeration requirements of all types of retail establishments. The new boxes, which range in capacity from 35 to 110 cubic feet, were introduced at the formal opening of a model commercial display and sales room of H. W. Prior, Dayton distributor, recently.

Advantages of mass production, and the exact performance of standardized refrigerators thus are brought to merchants, pointed out E. G. Biechler, president and general manager, in discussing the announcement.

"Frigidaire Corporation will continue to make refrigerating equipment to be installed in other kinds and makes of commercial boxes, display cases and

(Concluded on Page 16, Column 1)

A. H. JAEGER PROMOTED BY LEONARD COMPANY

Grand Rapids, Mich.—August H. Jaeger has been appointed first vice-president of the Leonard Refrigerator Co. Mr. Jaeger joined Leonard in March, 1926, as assistant sales manager. In Nov., 1926, he was elected secretary and sales manager. As first vice-president he will continue to handle the duties of general sales manager.

Before joining the Leonard organization, Mr. Jaeger spent ten years with the Hotpoint Electric Heating Co., now a division of Edison Electric Appliance Co., Chicago, Ill. Prior to that time he operated a branch electrical supply jobbing house in Seattle, Wash.

While with the Edison Electric Appliance Division in Chicago, Mr. Jaeger was active in Chicago Sales Manager club, and was president of that organization when he moved to Grand Rapids.

Prizes Awarded to Winners in Essay Contest

New York, N. Y.—With the announcement of the 835 prize winners and the presentation of prizes in the essay contest of the National Food Preservation Program, the week before Christmas, the greatest concerted effort in behalf of public health from the standpoint of proper refrigeration of foodstuffs was officially closed. Already preparations are under way for a similar but greater movement next fall.

In the program just closed, which was centered for public attention during the month of September, practically all the factors engaged or interested in the business of food preservation were united under one banner, for the first time in the history of the industry. The energies of the sales and advertising departments of most of the manufacturers of both iceless and ice refrigeration all over the country were concentrated for the bigger part of the summer in support of the movement. Practically all the light and power and a large part of the gas utilities of the country participated actively in the program. Associated interests, such as public health agencies, the Bureau of Home Economics of the Department of Agriculture, the furniture industry, and others, were participants in greater or less degree. In more than 2,000 cities of the country local representatives of these factors worked together, under the leadership of local councils, through meetings, newspaper and outdoor advertising, publicity, distribution of booklets and other advertising material to present to the public the menace of improper care of foodstuffs and the measure of protection necessary.

Undoubtedly the greatest public interest was aroused by the National Essay Contest, with $25,000 in prizes offered. Many thousands of essays had

(Concluded on Page 8, Column 3)

MUFFLY ELECTED HEAD OF DETROIT ENGINEERS

Detroit, Mich.—Glenn Muffly, chief engineer of Copeland Products, Inc., Mt. Clemens, Mich., has been elected president of the Detroit Section of the American Society of Refrigerating Engineers. Mr. Muffly took over the reins of the local section at the annual meeting and cabaret party held at the Kelvinator plant December 9.

Other officers for 1930 are: R. G. Nelson and C. C. Thomas, vice-presidents; C. F. Belshaw, secretary, and F. B. Riley, treasurer. George B. Bright, ex-president of the American Society of Refrigerating Engineers, presided as chairman at the short business session and introduced H. L. Edwards, new national president, who gave a brief address.

Upwards of 100 couples attended the social affair in the Kelvinator cafeteria, which was elaboratory decorated for the occasion. Dancing and vaudeville entertainment featured the evening's merriment.

MID-WINTER MEETING OF MANUFACTURERS, JAN. 20

New York, N. Y.—The National Electrical Manufacturers' Association announces that it will hold its mid-winter meeting the week of January 20, 1930, at N. E. M. A. headquarters, the Lighting Institute in the Grand Central Palace, and the Hotel Commodore, New York. A large attendance is expected at this meeting, which will include representatives from all of the supply Sections and most of the apparatus Sections. A general session is scheduled for Tuesday, January 21, at the Lighting Institute.

A meeting of the Section Council, composed of all Section chairmen, will be held early in the week. The dinner meeting of the Association will be held at the Hotel Commodore.

COPELAND ADOPTS NEW DISTRIBUTION SYSTEM

Mt. Clemens, Mich.—A new distributing system, involving the division of the United States into eight sales zones, is announced by Copeland Products, Inc. As outlined by W. D. McElhinny, vice-president in charge of sales, the system will revolve around a zone manager, who will reside in the territory, aided by three or four field men, depending on the size of the zone, to be located at strategic points in the zone.

Each manager will have complete charge of his zone and will be responsible for the dealers and distributors in it, their operations and the securing of new dealers and distributors. Selection of the zone managers is now under way. Several have already been named. Each will be a man long connected with the Copeland company or its sales subsidiary. Announcement of the managers and the territories to which they will be assigned has been deferred until after the first of the year.

Each field man will have a particular section or territory in the zone to which he is assigned and will be in constant contact with the dealers and distributors in his territory, aiding them in their sales, management and other problems. Practically all the field men have already been selected and are now at the Copeland plant, attending a 30-day school of instruction. The training will be complete and is intended to acquaint the salesmen with the handling of territories; the contacting of dealers and distributors; selection of new distributors and dealers; the selling and servicing of household, commercial and apartment refrigeration; with special courses in sales educational work; analysis of distributors' cost; the hiring and handling of salesmen and advertising, and the holding of group meetings and small conventions.

NATIONAL ELECTRIC POWER SELLS 5047 UNITS IN 10 MONTHS

New York, N. Y.—Subsidiaries of National Electric Power Co., 57 William St., sold 5,047 refrigerators during the first ten months of 1929. These properties also sold 2,969 electric ranges during the same period. Following are the total sales of both appliances by companies:

RANGE AND REFRIGERATOR SALES
January 1st to October 31st

	Sales from Jan. 1st to Oct. 30, 1929
1. Georgia Power & Light Co...	250
2. Eastern Shore Public Serv. Co.	490
3. Virginia Public Service Co....	1,437
4. Michigan Electric Power Co..	282
5. Tide Water Power Co.....	204
6. Jersey Central Power & Light Co.	1,133
7. Chester Valley Electric Co....	146
8. Keystone Public Service Co..	165
9. Florida Power Corp.....	379
10. Public Service Co. of New Hampshire	596
11. Michigan Public Service Co...	181
12. Ohio Electric Power Co.....	147
13. Twin State Gas & Electric Co. (2)	581
14. Penn Central Light & Power Co. (1)	538
15. Central Maine Power Co.....	711
16. Cumberland County Power & Light Co.	468
17. York Railways Co. (3).....	308
TOTAL.....	8,016

(1) Includes Home Electric Co.
(2) Includes Central Vermont P. S. Co. and Berwick & Salmon Falls Electric Co.
(3) Includes Glen Rock Electric Co.

SOUTHWEST TEXAS DEALERS SEE NEW KELVINATOR LINE

San Antonio, Texas—Approximately fifty Kelvinator dealers from southwest Texas met here recently under the auspices of the Southern Equipment Co., distributors, to view the new Kelvinator models and discuss sales policies and plans.

J. S. Cortines, district sales manager: A. A. Haney, H. L. Roper and Hugh Halff addressed the dealers.

COURT BANS USE OF NAME "FRIGIDETTE"

New York, N. Y.—A permanent injunction and restraining order forbidding further use of the name "Frigidette" by Sachs Quality Furniture, Inc., of New York City, was issued October 23 by Judge John M. Woolsey, of the U. S. Southern District Court of New York, in action brought by Frigidaire Corporation charging unfair competition and trade-mark infringement.

In its petition plaintiff declared that the furniture company had been building and offering for sale a refrigerator box under the trade name "Frigidette," and that such a name was calculated to deceive and cause defendant to profit through public demand for plaintiff's product.

In his final decree Judge Woolsey held the word "Frigidaire" to be a good and valid trade-mark, and ordered the furniture company to cease use of this trade name "or any trade-mark of colorable simulation or imitation of said trade-mark of plaintiff."

GENERAL MANAGER

H. M. Stewart

Vice-President of McCray Refrigerator Sales Corp., whose appointment as general manager of the company was recently announced.

NORTH AMERICAN LIGHT & POWER REPORTS SALE OF 4,653 UNITS IN 10 MONTHS

Chicago, Ill.—North American Light & Power Co. properties sold $4,383,702.15 worth of merchandise from the first of the year to the last of October, 1929. This amount equals the value of all merchandise sold by these same properties during the entire year of 1928. J. W. Busch is assistant vice-president in charge of merchandising.

The number of refrigerators sold during the year ranked third in the list of appliances, being surpassed only by electric irons and washing machines. The list of appliances and number sold follows:

Electric irons.....	12,568
Washing machines.....	5,776
Refrigerators	**4,653**
Gas ranges.....	4,637
Vacuum cleaners.....	4,338
Radio sets.....	2,468
Gas water heaters.....	2,112
Electric ranges.....	1,959
Ironers	537

FT. SMITH MERCHANDISING MAN GOES TO SHREVEPORT

Shreveport, La.—Appointment of H. P. McKean, formerly in charge of the merchandising department, Mississippi Valley Power Co., Fort Smith, Ark., as manager of the merchandising department of Southwestern Gas & Electric Company, was effective December 1.

Mr. Kean succeeds J. B. Kizer, Jr., as manager of the local department. Mr. Kizer has been promoted to the general offices of the Southwestern Gas & Electric Company.

As merchandising manager in Fort Smith, Mr. Kizer was awarded a prize in the Mazda efficiency campaign last year for the best all-around report of a merchandising executive on features of this work. He has been with the Mississippi Valley Power Company for the last five years, three and a half years of which were spent in Fort Smith. Southwestern Gas & Electric Co. is local Kelvinator distributor.

STRINGHAM CO. ACQUIRES MIDWEST REFRIGERATION

Des Moines, Iowa—Ward B. Stringham Co. has purchased Midwest Refrigeration Co., distributor for General Electric refrigerators in Iowa. Executive offices and salesroom of Stringham Co. will be maintained at 9th and Locust Sts.

W. B. Stringham is president and general manager of the new concern. H. F. Boehner and P. H. Sawyer, heads of the former Midwest Co., will be retained in executive capacities. Prior to organizing the local firm, Mr. Stringham was assistant general manager of Frank Edwards Co., Inter-Mountain territory distributors of General Electric, with headquarters at Salt Lake City, Utah.

ELECTRO-KOLD GETS ORDER FROM ARGENTINE

Spokane, Wash.—An order for fourteen complete cabinet electric refrigerating units for apartment house use has been received by the Electro-Kold Corp., from its agent, Luis Dusaur E. Hijo, in Buenos Aires, Argentina, South America.

As the Buenos Aires district is getting into its hot weather, shipments are being pushed along, and this latest order will be shipped just before the holidays.

The Electro-Kold Company reports that business is also picking up in the Bay District around San Francisco.

REFRIGERATION NOT RESPONSIBLE FOR BUFFALO ACCIDENT

(Continued from Page 1 Column 3)

not natural gas, food poisoning, or carbon monoxide, I am satisfied."

Acting on this authority, the Buffalo *Courier Express* of Monday, December 2, carried the story on the front page under a bold streamer headline reading, "Refrigerator Gas Kills Two." Papers in other cities also carried the report. Corrections of the erroneous conclusions by the medical examiner appeared in all Buffalo papers Tuesday, December 3, after A. J. MacSweeney, district sales manager of the Electrolux company, called attention to the plugged-up chimney in the kitchen, and further convinced the doctor by forcibly puncturing the refrigerator apparatus and allowing the entire contents to drain out into the closed room while the medical examiner looked on.

Besides the two deaths, six persons were affected by the monoxide fumes, five members of the Wieckmann family and Mrs. Mary Culliton, a friend of the Wieckmanns. The tragedy occurred Sunday, December 1, in the double apartment at 3043 Main St., in which the Wieckmanns lived. Dr. William Callahan, who had treated Mrs. Wieckmann the night before the accident, when he thought that she was suffering from food poisoning, returned Sunday morning and found Mr. Wieckmann and Mrs. Culliton asphyxiated and the other members of the family in a semi-conscious condition. He was investigating the cause, when he discovered himself getting weak and, after opening windows to admit fresh air into the rooms, called a hospital for aid.

Theory of Medical Examiner

The statement, as made by the medical examiner, Dr. DeDominicis, to the Buffalo *Courier Express*, at the investigation, follows: "The blood of these victims is being analyzed to find if it shows any trace of gas used in this type of refrigerator. I am satisfied that the gas came from the refrigerator, as we have excluded the possibility of any other source. It remains to be seen only what kind of gas it was. This refrigerator uses a gas in a coil for refrigeration. A small pilot light is kept burning and as the gas passes over the light it expands from the heat, although the gas itself does not come in contact with the light. When help arrived on the scene that pilot light was burning, so that it was impossible for natural or coal gas to have caused these deaths. It was not ammonia, as there was no odor of this gas. It was certainly not food poisoning. The coloring of the bodies of the victims excludes the possibility of death being caused by food or natural gas. In a natural gas death the body shows a high pink color. In food poisoning the coloring is natural. The bodies of the victims were purple, indicating death by gas, but not the kind of gas. The theory that it was carbon monoxide is excluded at once. The baby and canary bird would have been the first to succumb to this gas, had it been the cause. On the contrary, the baby, which was farthest from the kitchen, was the least affected, and I understand the canary bird was not overcome. It is my opinion that there was a slow leak in the coil in the refrigerator. These people bought the refrigerator, I understand, two years ago when they moved into the house, and so far as I know it was the first time it had troubled them."

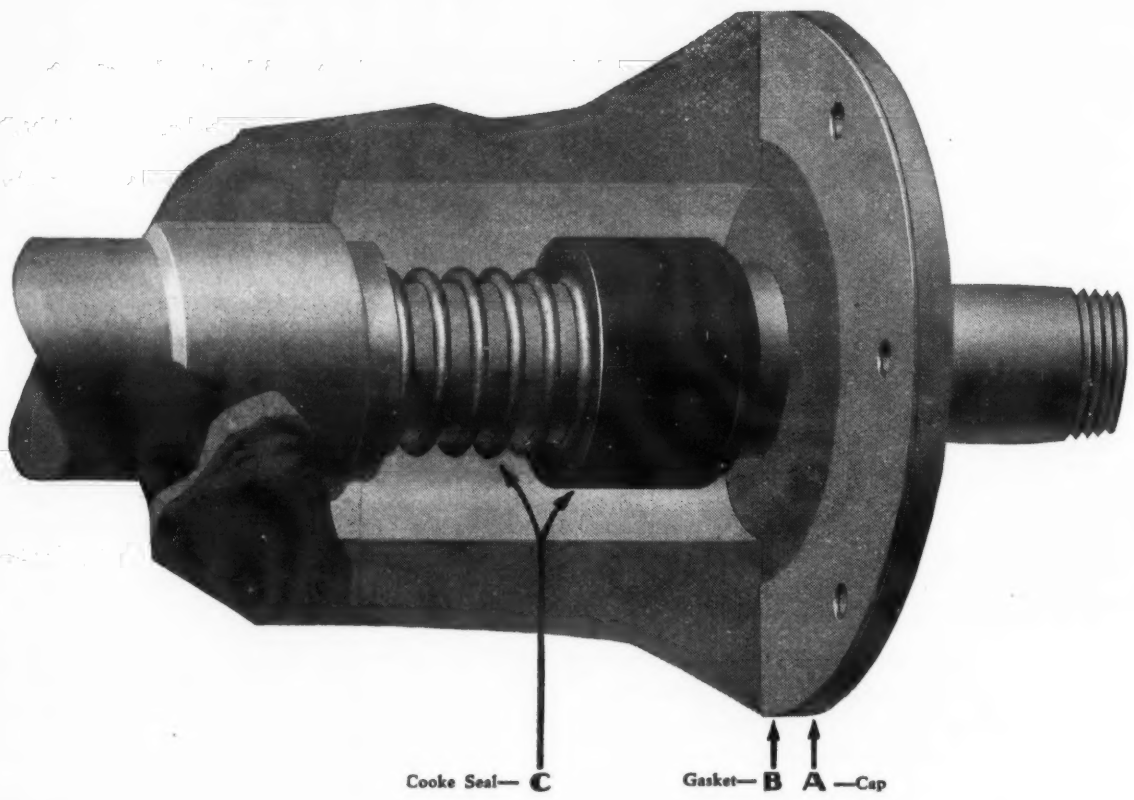
Electrolux Cleared of Blame

The medical examiner's theory was exploded by the results of the blood tests, by evidence uncovered Monday, December 2, when gas company workmen found the kitchen chimney stuffed shut with snow and soot, and by a test made with the refrigerator. The suspected refrigerating unit was examined by officials of the Electrolux company, its maker, and the Servel company representatives in this district. It was found intact.

To prove that the contents of the refrigerator would have caused no ill effects, even though the unit had leaked, Edward J. McSweeney, district representative of the company, closed up the kitchen and punctured the cooling tank, allowing the vapors to come into the room while he and Dr. DeDominicis were present. The gas proved to be only ammonia and water and unharmful. Before making the test Mr. McSweeney issued the following statement: "The Electrolux refrigerator contains only water, ammonia and hydrogen. There is also a small gas flame, which acts as a pump. It is impossible for any single Electrolux or any number of them, no matter how large, to kill a person. The only effect this refrigerator ammonia has is an irritation of the nasal tissues. In one and a half hours the odor is completely removed from the room. If a leak occurs, the ammonia can be detected immediately."

As a result of the blood tests, the condition of the stopped-up chimney and the experiment with the refrigerating unit, Dr. DeDominicis issued certificates of accidental deaths from the effects of carbon monoxide.

For Dealer or Maker The Sooner the Better



LEAKING refrigerants wipe out more profits and ruin more sunny dispositions than any other single trouble in the electric refrigeration industry.

That is why dealers and distributors, in steadily increasing numbers, are thanking us—with orders—for Cooke Seal Units. No longer do they have to pull out the compressor, bring it back to the shop, dismantle it, refinish the crankshaft, fit new seal, reassemble, return, install.

Instead they simply take a Cooke Seal Unit (made to fit all prominent makes) remove the old seal, slap in the new one, replace the fly wheel and belt, shoot in some gas and get back to selling again, knowing that *that* machine is *permanently* repaired.

For the Cooke Seal Ring will not leak, or squeak, or overload the motor. It will last indefinitely.

That is why manufacturers, too, are killing trouble before it's born by making Cooke Seal Ring standard equipment. It actually costs less to install—yet it is the *only* ring made which revolves *with* the shaft and seals *with* the pressure (instead of against it) and therefore forms a leaktight, ground joint against the seal cap.

Look below, pick your coupon and get all the facts today before you lay yourself open to more trouble and dollar-loss by making or selling a machine which, sooner or later, is apt to pop a leak.

COOKE Seal Ring

20 N. Green Street Dept. V Chicago

DISTRIBUTORS!

COOKE Seal Ring,
20 N. Green Street, Chicago.
Dept. V.

Please tell me about your special service to refrigerator distributors, dealers, service men.

*Name*_____
*Address*_____
*City*_____ *State*_____

MANUFACTURERS!

COOKE Seal Ring,
20 N. Green Street, Chicago.
Dept. V.

Please tell me how Cooke Seal Rings can be used to better my machine and what it will cost.

*Name*_____
*Address*_____
*City*_____ *State*_____

SERVEL FRANCHISE PROVIDES

GREATER PROFITS

for selling agencies in 1930

SERVEL sales policies for 1930 have been set up for the retail and wholesale outlets to make more money . . . to build a permanent and more profitable business.

The greater value of the franchise is measured not only by new list prices, which offer greater values per dollar, nor by discounts adjusted to insure a profitable annual report, but by a vigorous determination to expand and cultivate each local market to the fullest possible extent.

Servel dealers will receive complete and energetic field assistance in every angle of their sales work. Educational programs have been designed to develop each territory rapidly and profitably.

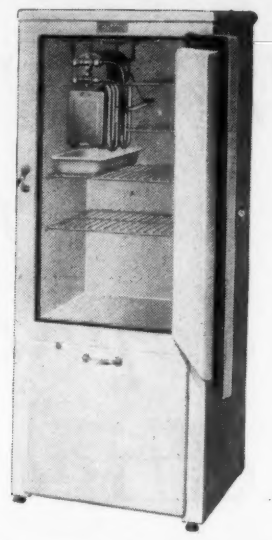
A new co-operative program of intensive local advertising, described as the most generous in the industry, is ready for operation.

The famous K-line of domestic models will not be marred by innovations or changes . . . but is augmented by the new JS-4, a four cubic foot leader priced to assure nation-wide acceptance.

The Servel Commercial Series . . . already the outstanding line in this great field . . . has been increased by new models which make it the most complete and most flexible offered by any manufacturer . . . with capacities ranging from 125 to 1200 pounds . . . and adaptable to any type of commercial service.

If you are in a position to establish and maintain a complete refrigeration business in your city . . . if you are prepared to take the fullest advantage of the profit possibilities assured to Servel outlets in 1930, write to us for complete information on the new Servel Sales Program.

NOW . . . Servel Refrigeration at a price never possible before

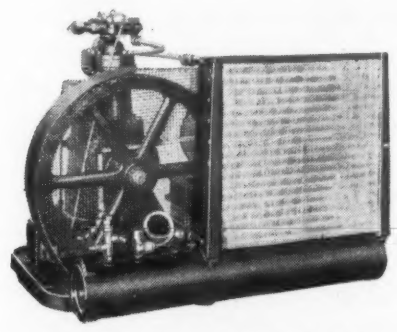


The new 4-foot Servel

with the famous Servel refrigerating unit in a specially designed Seeger cabinet

Width overall 24¼" including cap
Depth overall 23½" including hardware and tubing
Height overall 58" including glider
Net food storage capacity 4.4 cubic feet.

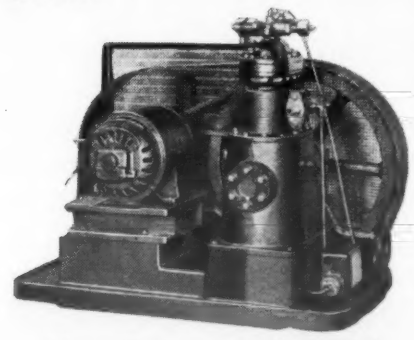
The shelf area is 8.62 square feet. There are three trays containing 30 ice cubes . . . 3.5 pounds of ice. Beautiful white baked enamel finish. One-piece porcelain interior.



New Commercial Model
75-A Machine (Air-cooled)

designed for medium sized market or dairy use on refrigerators, display cases, etc., singly or in multiple . . . and gives excellent results in apartment installations involving 8 to 16 refrigerators in multiple.

Rating: Nominal 24 hour capacity 850 pounds ice equivalent.



New Commercial Model
100-A Machine (Air-cooled)

Here is the largest of the Air-Cooled Servel commercial units designed to serve large market or dairy coolers, multiple installations on coolers or display cases, or for apartment house multiples involving 10 to 20 refrigerators.

Rating: Nominal 24 hour capacity of 1050 pounds ice equivalent.

SERVEL SALES, INC.

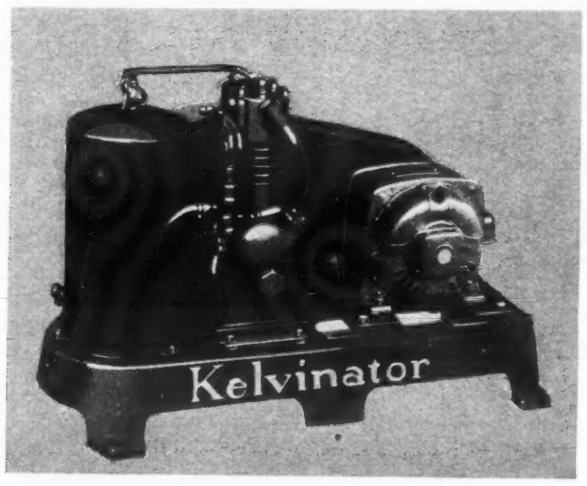
Evansville, Indiana

KELVINATOR'S

Enlarged Commercial Line Unequaled in Adaptability to Specific Refrigeration Problems

KELVINATOR'S 16 years of leadership in commercial electric refrigeration is due largely to Kelvinator's unsurpassed line of commercial equipment—a line so comprehensive that the Kelvinator dealer is fully able to meet every specific refrigeration problem.

The recent addition of two new condensing units to its line now gives the Kelvinator dealer fifteen distinct units, including eight heavy-duty models, to meet the varying requirements of refrigeration users.



Model WR-20. 3-4 H. P. Water-Cooled Unit with water-cooled compressor head. Normal capacity 1-2 ton ice melting per 24 hours operation.

New Heavy-Duty Compressors

Kelvinator Heavy-Duty Compressors inaugurate a new measure of economy and efficiency for heavy refrigeration loads. They are available with both water-cooled and refrigerant-cooled compressor heads, making them particularly adaptable for installations where they are apt to encounter frequent overloads.

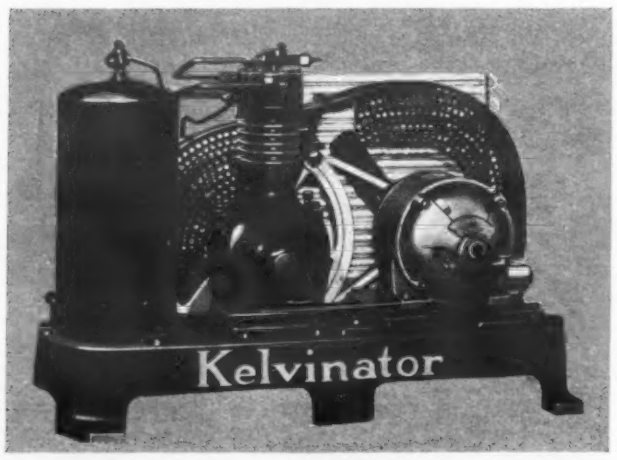
Giant Cross-Fin Cooling Units

To match the increased efficiency of its heavy-duty compressors, Kelvinator presents an outstanding achievement in its line of giant cross-fin cooling units. It is no longer necessary to try adapting two or more smaller cooling units for a big cooler installation when Kelvinator has available these standard giant units. The Model X5-140, a triple section unit, has a capacity equivalent to 105 tons of ice per year.

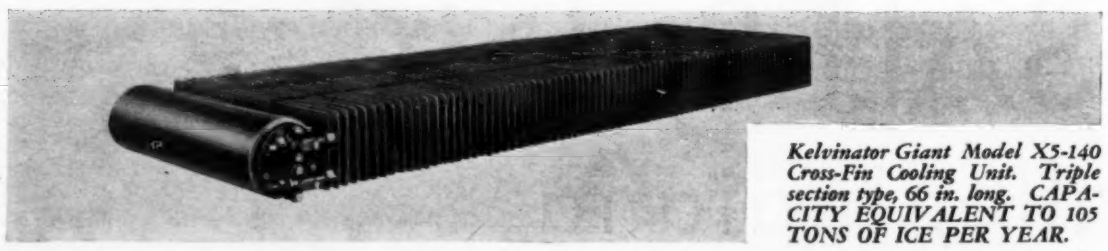
Kelvinator Commercial Sales Offer Year-Round Profits

There is a rich market for commercial electric refrigeration, and the dealers who are best equipped to supply that market are reaping generous profits today. Because the Kelvinator line is so complete, enabling wholly satisfactory installations in every conceivable instance, and because 16 years of exclusive electric refrigeration experience has made the name Kelvinator synonymous with reliability—thousands of progressive merchants are already enjoying year-round profits representing the Kelvinator line.

We will gladly mail, upon request, details of Kelvinator's 1930 line of commercial refrigeration equipment as well as information on one of the most profitable dealer franchises in the industry today.



Model R-10. 3-4 H.P. Air-Cooled Unit with refrigerant-cooled head.



Kelvinator Giant Model X5-140 Cross-Fin Cooling Unit. Triple section type, 66 in. long. CAPACITY EQUIVALENT TO 105 TONS OF ICE PER YEAR.

KELVINATOR SALES CORPORATION, DETROIT, MICHIGAN
KELVINATOR OF CANADA, LIMITED, LONDON, ONTARIO

Honored by Engineers

Harry D. Edwards

Harry D. Edwards, former vice-president of the American Society of Refrigerating Engineers, who was elected president of that body at its annual meeting, held in New York City, Dec. 4-7, was born at Webberville, Mich. April 22, 1886.

Mr. Edwards received the degree of B. S. in Mechanical Engineering from University of Michigan in 1908. During the next year, shortly after the production of oxygen and the art of oxy-acetylene welding and cutting were introduced into this country by Dr. Carl Von Linde he joined Linde Air Products Co., Buffalo, N. Y., working as a draftsman, designing oxygen-producing equipment, production plants and equipment used in autogenous welding. He was appointed chief draftsman in 1912.

Linde Air Products and Prest-O-Lite Co. came under the management of Union Carbide Co., and Mr. Edwards was transferred to New York in 1913. During the war he had charge of the design of the helium separating equipment founded by Linde Air Products Co., which was successfully used at Fort Worth helium plant, built by the U. S. Navy Department.

Later Mr. Edwards became works engineer of Linde Air Products Co., Prest-O-Lite Co., and Carbide and Carbon Chemicals Corp. During the past years he has devoted his time to the development of new equipment, new processes and new products for the above companies and other units of Union Carbide and Carbon Corp.

Mr. Edwards' refrigeration experience probably covers a wider range than that of any other individual in the refrigeration industry and the corporation employing him is probably the world's largest user of standard refrigeration equipment. Mr. Edwards is also considered an authority on properties of refrigerants and other gases and the design and construction of high pressure compressors.

As vice-president of the American Society of Refrigerating Engineers and chairman of Standards Committee, he undertook the task of bringing the drafting of the safety code for mechanical refrigeration to a conclusion. This work was completed just prior to his election as president.

Mr. Edwards' other activities are indicated by his emembership in the American Society of Mechanical Engineers and the National Association of Practical Refrigerating Engineers, his survey as a director of the heat transmission committee of National Research Council, chairmanship of the safety code for Compressed Air Machinery, and as a committee member on the air and refrigerating piping divisions of the power piping code committee.

SUBJECTS FOR RESEARCH DISCUSSED AT ANNUAL MEETING OF ENGINEERS

(Continued from Page 1. Column 1)

to retain the refrigeration for several days.

A paper by Dr. Donald H. Andrews of Johns Hopkins University, a pioneer in the attainment of very low temperatures, carried news to refrigerating engineers regarding recent discoveries of methods for low temperature production, vastly simpler than had been worked out before by previous investigations in European institutions. Stating that the study of matter at temperatures near the absolute zero constituted one of the great fields of study in the physics and chemistry of the future, the author explained an apparatus for attaining very low temperatures by the absorption of gases from charcoal.

Open Forum on Research

The business session of the convention was entirely devoted to an open forum discussion on the general subject of research. H. Harrison, general sales manager of Brunswick Kroeschell Co., New Brunswick, N. J., chairman of the Research Committee, presented the carefully developed policies of his committee, covering three particular activities.

The first is fundamental research, to be sponsored by the Society in its entirety, such as the past investigations of ammonia at the Bureau of Standards, and the present work on carbon dioxide, also being carried on at the Bureau.

The second class of investigation concerns studies of more immediate, though less permanent, value, such as is carried on by companies and colleges dealing principally with materials and the machinery of refrigeration. In general, the Society has not had any specific charge of such work. Only in the event of a particular problem has this type of research been promoted. An example is that of the corrosion research in which the Society took a leading part, supported by other organizations.

The third division of the committee's activities, according to Mr. Harrison, has been the promotion of student prizes for research papers, the first group of which were read at this convention.

Commenting upon the activities of the Committee, Prof. A. J. Wood, of Pennsylvania State College, retiring president of the A. S. R. E., expressed the opinion that the refrigerating industries were not forging ahead into unknown fields of technical knowledge to the same extent that other progressive industries are now doing. Several suggestions were made from the floor regarding suitable subjects for research such as: studies of refrigerant properties, foods, materials used in refrigerating machines (such as metals and oils), effect of refrigerants upon the human body, and the pathological benefits of air conditioning.

David L. Fiske, secretary of the Society, discussed at length the policy upon which co-operative research should be based. He expressed the opinion that most problems which engineers want solved should be solved by them at their company's expense, because of the fact that they fall into the class of invention rather than research. He pointed out that subjects selected for research (to be financed by contributions) should be of such nature that they are too broad for any one agency to conduct alone. The only proper studies which can be undertaken by a technical society, he believes, are those of a very fundamental sort, requiring a great deal of time and money for their solution.

Metropolitan Section Joins in Domestic Session

Members of the national Society joined together with the New York Section in a dinner on Wednesday. L. A. Ramsey, president of the New York Section, presided at the second session which followed the dinner.

Franklin E. Villas, superintendent of the Refrigeration Department of the Consolidated Gas Co., New York, presented the service and development tests which have been made on the gas-fired refrigerator. He also outlined the merchandising organization which is now

(Continued on Page 6, Column 4)

SELL THE MEN!

Build up your Christmas Trade by helping them solve their family gift problem

THE "what-shall-I-give-her?" problem harasses most heads of families just before Christmas.

Selecting the appropriate gift for the whole family . . . . but presented to Friend Wife . . . . is usually the toughest thing to decide. That's why the matter is often left to the last minute.

Every General Electric dealer has the right answer for these tail-enders—a General Electric Refrigerator of the *right size* for every household.

Let the men know the good news. Tell them about it in your local newspapers. Write a special letter to a list of live prospects. And another letter to those who may have talked about a refrigerator with you before, but have not bought yet. You know, the kind that "just dropped in to see this thing" —maybe last August. If you get after them *now*, you will find some of them ready to buy.

Put a message to men in your windows . . . . along with a card suggesting what an appropriate gift a General Electric will be, delivered early Christmas Eve. Men like General Electric Refrigerators as much as the women do . . . . maybe more. The fact that it is the last word in *modern electrical design* appeals to them. They like the simplicity and efficiency of the mechanism . . . . which is hermetically sealed, and *permanently* oiled . . . proof against dirt and moisture. Let them know the General Electric is the *only* refrigerator with that exclusive feature . . . . and show them how it is all mounted *on top*, permitting heat extracted from the cabinet to rise up and away from it, *as it should*. That's one big reason for its economical operation . . . . which costs only a few pennies a day. Tell them that, and watch the checkbooks come out of their pockets.

And be sure to lay stress on the engineering skill and the *name*—General Electric—back of the refrigerator. Every man knows that indicates both *quality* and *dependability*. It's the clinching sales point.

A GENERAL ELECTRIC REFRIGERATOR IS THE BEST POSSIBLE INVESTMENT FOR A MAN TO MAKE AT CHRISTMAS TIME . . . IT RETURNS GOOD HEALTH ALL YEAR FOR HIS ENTIRE FAMILY

TEN POINTS OF SUPERIORITY

1—hermetically-sealed, dust-proof mechanism—permanently oiled.
2—a simple freezing regulator—right on top of the cabinet—always accessible—easy to reach and easy to regulate.
3—entire mechanism on top—incomparably quiet in operation.
4—an all-steel warp-proof cabinet.
5—mounted on legs with broom-room underneath.
6—a sanitary, all-porcelain chilling chamber.
7—maximum shelf and food storage space in the cabinet.
8—both General Electric Refrigerator and a radio can run on the same electric current.
9—easy installation—just plug it into any electric light socket.
10—an unqualified two year service guarantee.

EVERY GENERAL ELECTRIC REFRIGERATOR IS HERMETICALLY SEALED

GENERAL ELECTRIC

ALL-STEEL REFRIGERATOR

ELECTRIC REFRIGERATION DEPARTMENT OF GENERAL ELECTRIC COMPANY, HANNA BUILDING, CLEVELAND, OHIO

THE
NEW TREND
OF
ELECTRIC
REFRIGERATION

¶ Smaller Motors and Machines!

¶ Much Better Insulated Cabinets!

Results achieved:

less running time of the smaller machine, reduced total cost of manufacture!

COMPARATIVE VALUES

established by U. S. Bureau of Standards, Armour Institute, State Universities and other impartial authorities

MATERIAL	WT. CU. FT.	INSULATION VALUE	ABSORPTION*
DRY-ZERO	2 lbs.	4.15 to 4.3	14
Corkboard	9.5 to 13 lbs.	2.9 to 3.3	28
Wood fibre board	13 lbs.	2.9 to 3.2	115
Flax fibre board	13 lbs.	3 to 3.2	66
Cane fibre board	15 lbs.	2.7 to 2.9	78
Mineral wool slab	17 lbs.	2.6 to 2.8	

*Test run by University of Minnesota

DRY-ZERO CORPORATION, 130 N. Wells St., Chicago, Illinois

DRY·ZERO

Economy Appeals to Scotchmen

Frigidaire branch store in Edinburgh, Scotland, is building up increasing trade by educating Scotch housewives to the advantages and savings effected by mechanical refrigeration.

AMERICAN SOCIETY OF REFRIGERATING ENGINEERS ANNUAL MEETING IN N.Y.C.

(Concluded from Page 4, Column 5)

promoting the market for the gas refrigerator, and explained the detailed operation of the equipment.

C. F. Belshaw, research engineer of the George B. Bright Company, Detroit, compared the effect on refrigerator performance resulting from different methods of icing, that is, the use of different sizes and shapes of ice. He explained the bearing of this study on "Test Code for Refrigerators" recently approved and published by the Council of the Society.

Closing the program for the first day, Dr. L. A. Phillip, director of laboratories of the Kelvinator Corporation, Detroit, explained methods which have been developed in the Kelvinator laboratory for the measurement of small refrigerating machine capacities. He outlined a new type of calorimeter, which is being used for an exhaustive study for machine capacities as an aid to the design of equipment.

Special Section on Ice Manufacture

George B. Bright, consulting engineer of Detroit, and ex-president of the A. S. R. E., presided at the third session, Thursday morning, which was devoted to ice making plants. The opening address was by Charles C. Small, president of the American Ice Company, New York City. He said:

"The ice industry is deeply indebted to the engineering profession, for it was the research of refrigerating engineers that enabled us to shift our operations from the old wooden ice house to the modern factory. The leading ice companies in the present year have handled a greater volume of business and at a higher total profit than in any previous period. As long as people grow food in one place and consume it in another, the ice business will flourish, and along with it the refrigerating engineer."

C. J. Carlsen of the Commonwealth Edison Company, Chicago, Ill., read a paper by H. L. Lincoln, chief engineer of the Union Ice Company, San Francisco, Calif. This was followed by a paper by R. C. Doremus, mechanical engineer of George B. Bright Company, Detroit, read by C. F. Belshaw, entitled, "Special Equipment for the Tank Room," which dealt with hoists and other apparatus.

Harry Sloan, chief engineer, Vilter Manufacturing Co., Milwaukee, Wis., reviewed a paper on the subject of "The Electrically Driven Ice Plant," which he submitted to the Society twelve years ago.

Refrigeration Design Problems

The fourth session, at which A. W. Oakley, chairman of the A. S. R. E. program committee, and engineer of the Merchants Refrigerating Co., New York City, presided, was devoted to problems in the design of refrigeration equipment. Present conditions and trends in the cold storage industry were reviewed by Frank A. Horne, president of the Merchants Refrigerating Co., New York City. The design of railway car icing stations was discussed in detail by C. T. Baker, consulting engineer, Atlanta, Ga. H. A. S. Howarth, general manager, Kingsbury Machine Works, Philadelphia, Pa., gave a picture of the demands made on bearing designers and their great interest in the subject of lubrication. A paper read by H. D. Edwards, newly-elected president of the Society, dealt with relations of the ice plant with public utility companies furnishing electricity for power.

Corrosion, Test Codes

Alvin H. Baer, sales manager of the Frick Co., Waynesboro, Pa., presided at the fifth session Friday morning, December 6. The opening address at this session was by Fred Ophuis, consulting engineer of New York City, who discussed "Trends in Refrigerating Engineering."

Three technical papers were presented at this session as follows: "Practical Methods in Corrosion Prevention," by Guy V. Thompson, assistant superintendent, American Ice Company, New York; "Test of a Two-stage Double Inlet Ammonia Compressor," by George A. Horne, vice-president, Merchants Refrigerating Co., New York; and "What is the Best Humidity for Stored Goods?" by Martin Hirsch, consulting engineer, Frankfort an Main, Germany.

A special feature of this session was a demonstration of a new variety of ice, having the temperature of carbon dioxide ice, but containing in homogenous relation with it a considerable and variable amount of water ice. This subject was treated by Walter S. Josephson, head of the Hydrice Corp. of New York City.

Joint Session With Mechanical Engineers

Friday afternoon there was a joint session with the American Society of Mechanical Engineers, held at the Engineering Societies building. Harry D. Edwards presided. Two papers were read, one for the A. S. M. E., by Sanford A. Moss of the General Electric Company, Lynn, Mass., and one for the A. S. R. E., by B. H. Coffey, consulting engineer, Elizabeth, N. J. Mr. Coffey's paper dealt with "The Constancy of Wet-Bulb Temperature and Total Heat Content During Adiabatic Saturation of Dry Air with Water Vapor." Mr. Moss discussed "Engineering Computations for Air and Gas."

At the banquet on Friday evening, outgoing president, Prof. A. J. Wood, reviewed in scholarly fashion the accomplishments, opportunities and needs of the refrigeration industry. Prof. Frederick Keyes, who was presented with honorary membership, responded with a talk on the value of pure science to industry. Fitting notice was given Prof. George Alfred Goodenough, long prominent as a member of the faculty of the University of Illinois, who died between the time that he was elected to honorary membership and this meeting at which the certificate was to have been presented.

Special Session for Students

The seventh session, Saturday morning, was presided over by Henry Harrison, sales manager of the Brunswick-Kroeschell Company, and chairman of the Research Committee. Mr. Harrison is responsible for a new plan of student prize papers, and this session was given to the reading of four papers and the award of the first set of prizes.

The session was opened with an address by Colonel Crosby Field, president of the Flakice Corp. and vice-president of the Brillo Corp., Brooklyn, N. Y. His subject was, "How Can the Engineer Work for Himself Today?"

The student authors and their subjects were as follows:

"Rural Refrigeration," by Martin R. Borger, York, Pa. (Pennsylvania State College).

"Heat Transmission in the Refrigeration Industry," by Charles Keerll (Massachusetts Institute of Technology).

"The Flow of Superheated Ammonia in Pipes," by John C. Reed and Edgar E. Ambrosius (University of Illinois).

"Lubrication Test with a Rotary Ammonia Compressor," by E. J. Tavanlar (Sheffield Scientific School, Yale University).

The first prize of $200 was awarded to the students from University of Illinois, and the second prize of $75 to the representative from Massachusetts Institute of Technology. Two third prizes were given to the other contestants whose papers were accepted. Engraved certificates of award were also presented.

New Officers Elected

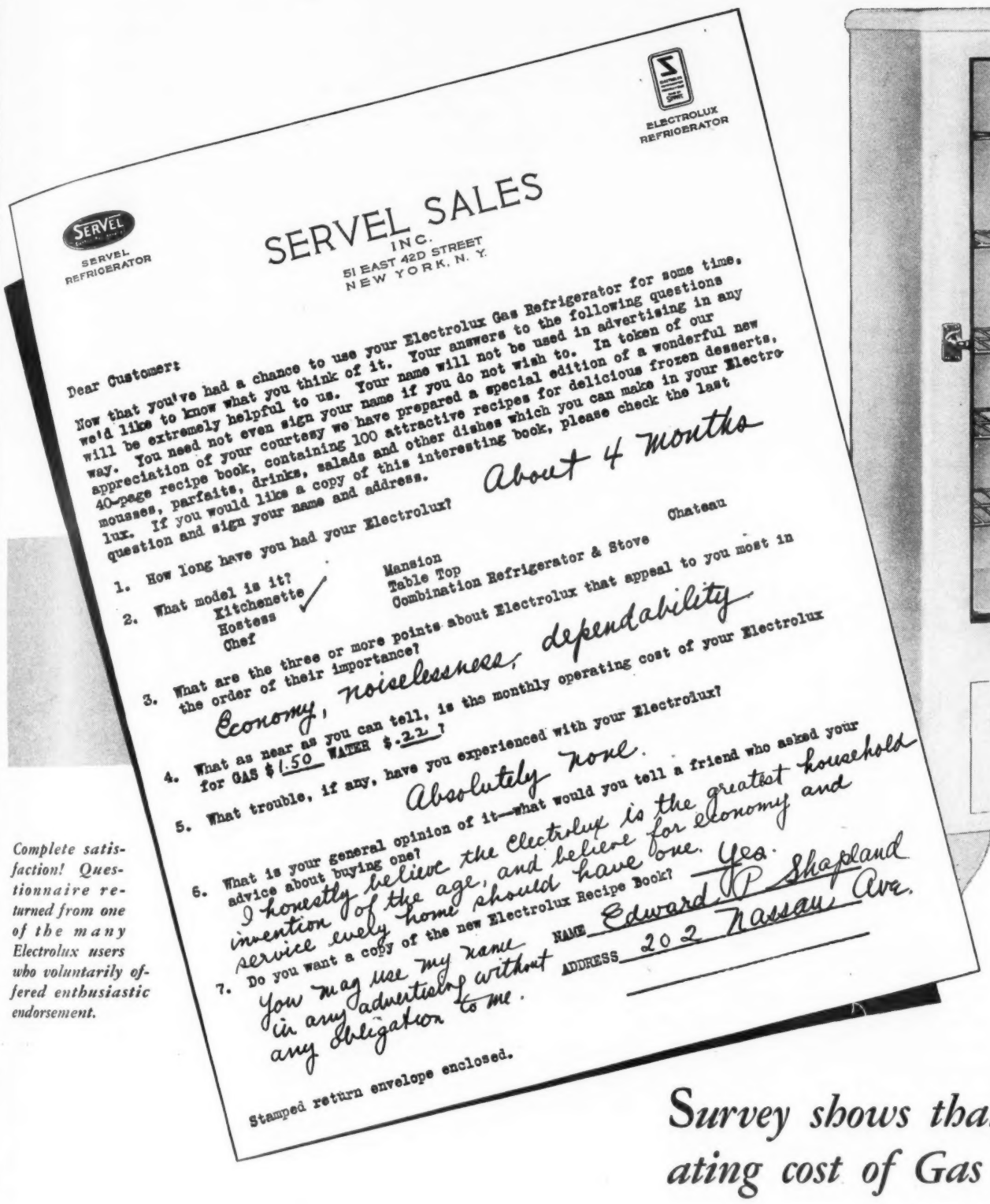
The following new officers for 1930 were announced:

President, H. D. Edwards.

Second Vice-President, Glenn Muffly.

New members of the board of directors include: C. F. Belshaw, Detroit, Mich.; J. B. Churchill, New York, N. Y.; A. R. Stevenson, Jr., Schenectady, N. Y., and L. L. Lewis, Newark, N. J.

Without Exception
Brooklyn Users Enthusiastic Over
ELECTROLUX



SERVEL REFRIGERATOR

SERVEL SALES
INC.
51 EAST 42D STREET
NEW YORK, N. Y.

ELECTROLUX REFRIGERATOR

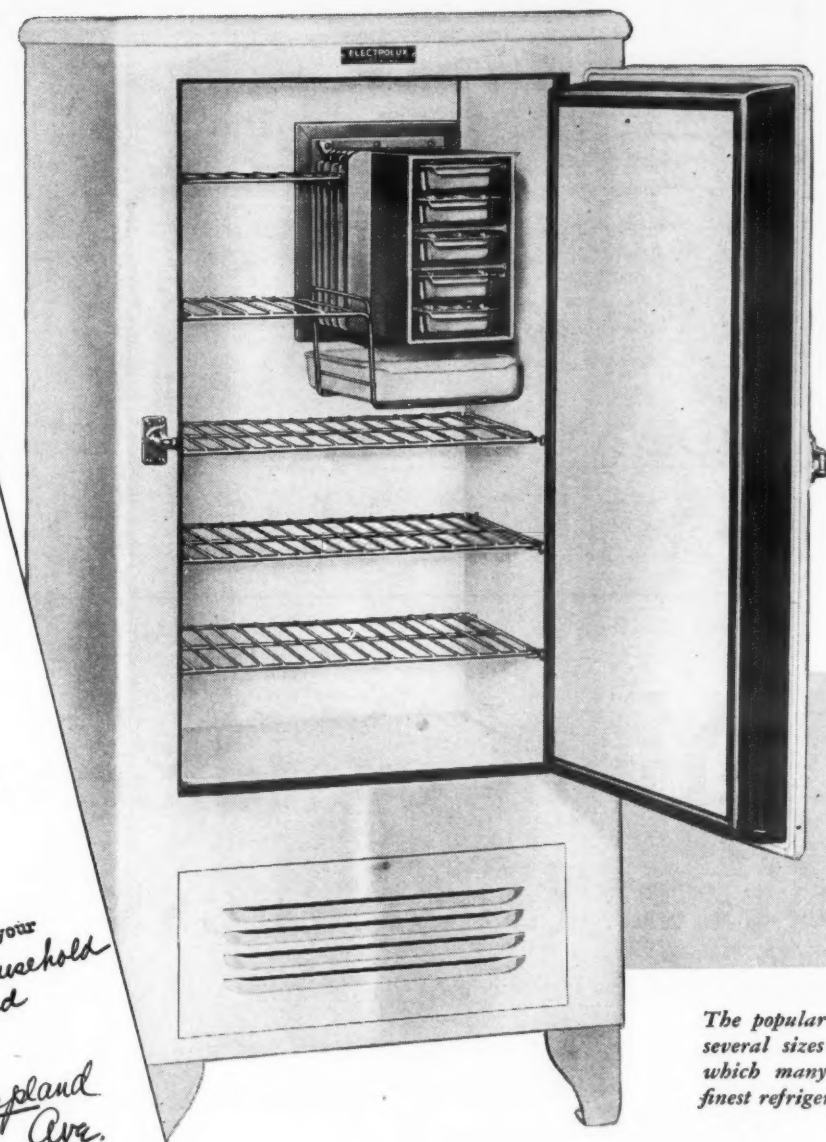
Dear Customer:

Now that you've had a chance to use your Electrolux Gas Refrigerator for some time, we'd like to know what you think of it. Your answers to the following questions will be extremely helpful to us. Your name will not be used in advertising in any way. You need not even sign your name if you do not wish to. In token of our appreciation of your courtesy we have prepared a special edition of a wonderful new 40-page recipe book, containing 100 attractive recipes for delicious frozen desserts, mousses, parfaits, drinks, salads and other dishes which you can make in your Electrolux. If you would like a copy of this interesting book, please check the last question and sign your name and address.

1. How long have you had your Electrolux? About 4 months
2. What model is it? Kitchenette, Hostess ✓, Chef, Mansion, Table Top, Combination Refrigerator & Stove, Chateau
3. What are the three or more points about Electrolux that appeal to you most in the order of their importance? Economy, noiselessness, dependability
4. What as near as you can tell, is the monthly operating cost of your Electrolux for GAS $1.50 WATER $.22 ?
5. What trouble, if any, have you experienced with your Electrolux? Absolutely none.
6. What is your general opinion of it—what would you tell a friend who asked your advice about buying one? I honestly believe the Electrolux is the greatest household invention of the age, and believe for economy and service every home should have one.
7. Do you want a copy of the new Electrolux Recipe Book? Yes. You may use my name in any advertising without any obligation to me. NAME Edward P. Shapland ADDRESS 202 Nassau Ave.

Stamped return envelope enclosed.

Complete satisfaction! Questionnaire returned from one of the many Electrolux users who voluntarily offered enthusiastic endorsement.



The popular Hostess model, one of the several sizes and models of Electrolux which many users declared to be the finest refrigerator on the market.

Survey shows that absolute noiselessness and low operating cost of Gas Refrigerator give perfect satisfaction

ANSWERS to a recent questionnaire to Brooklyn users, without exception, reported complete approval of Electrolux, the Gas Refrigerator.

This survey asked for frank statements on the Gas Refrigerator's merits . . . or disadvantages, if any. The answer was just as we expected—100% enthusiastic satisfaction and unqualified endorsement. And, invariably, persons answering stressed the unique advantages of Electrolux . . . lowest operating cost and absolute noiselessness.

Think what this means to the dealer! Satisfied customers are the greatest sales builders for any product, and particularly for an automatic refrigerator. Every proud owner points with pride to her Electrolux, shows it to her friends, and builds up a market to which future sales are but a matter of course.

With no moving parts to wear, to vibrate, to get out of order, the customer gets silent operation and freedom from constant attention to her refrigerator. With no machinery, there are no mechanical parts to get out of order. When an Electrolux dealer makes a sale he doesn't have to worry about dissatisfaction from endless service calls.

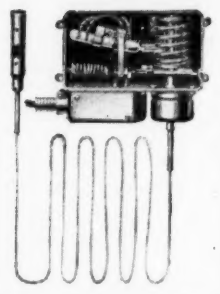
Electrolux is not a mechanical refrigerator. It is automatic, of course, but it operates by physical action . . . the heat of one tiny gas flame. The cold-making unit is in one solidly welded piece . . . hermetically sealed at the factory. It's all inside the refrigerator . . . out of sight . . . out of mind.

Add to this the low operating cost, from 25 to 70 cents a week, depending on the gas and water rates, and you know why Electrolux owners are boosting this gas refrigerator.

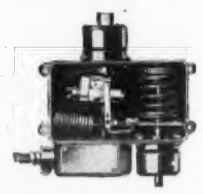
All over the country there is a swing to the gas refrigerator. In some districts Electrolux franchises are still available. Get your share of this fast increasing business. Write for full information to Servel Sales, Inc., Evansville, Indiana.

ELECTROLUX THE *Gas* REFRIGERATOR

MERCOID CONTROLS sold this order for 12 BOXES



No. 848-K and L for temperature control of liquids and gases, adjustable range—K minus 30° to plus 60°. L-1 from plus 10° to 70°.



Model IBA for low side control by pressure. Adjustable range—any cut-in or cut-out points between 25 inches vacuum and 25 lbs. pressure. High side cut-out—adjustable for pressures up to 160 lbs.

A MANUFACTURER in the middle west developed a method of making rancid butter sweet by supplying counteracting bacteria. To develop and keep these bacteria, a constant temperature of 68° was necessary. The ordinary box was used, but naturally the control furnished with the unit was not designed to hold the temperature closely enough.

The local dealer got the order for 12 boxes without any competition by simply installing Mercoids which gave a control of 1° plus or minus. There are thousands of industrial and commercial installations where Mercoid is doing the same kind of work.

For Multiple Hook-ups, etc., the Dual Mercoid provides low side control and high side cut-out in 1 instrument. It can be furnished for either pressure or temperature control of low side. Adjustable over a wide range to furnish "cut-in" and "cut-out" at any desired pressure or temperature.

These controls operate with the well-known Mercoid switch—no exposed arc—no corrosion of contacts—and the control carries full line current, either 110 or 220 volts.

Write today for complete information on these instruments and the Solenoid Valve for water-cooled units.

AMERICAN RADIATOR COMPANY

Accessories Division, Dept. MER-9
40 West 40th Street, New York, N.Y.

MER-10

PRIZE WINNERS IN FOOD PRESERVATION ESSAY CONTEST ANNOUNCED

(Concluded from Page 1 Column 3)

been received at the headquarters of the National Council in New York, when the contest closed at midnight, September 30. The entries were sorted and classified by a corps of graduates of the Teachers' College, Columbia University, who were all specialists in home economics, and the selection of the winners was made by three eminent men—Merle Thorpe, editor of *Nation's Business;* B. C. Forbes, editor of *Forbes Magazine,* and Dr. Walter Hollis Eddy, professor of physiological chemistry, Teachers' College, Columbia University.

The first prize of $10,000, with an alternative choice of a model home, was won by a young college student, who wrote his essay while both wrists were strapped in splints, the result of a fall from a horse. He is Dudley L. Harley, 324 West John Street, Martinsburg. W. Va., a senior student in Lehigh University and a candidate for a Rhodes scholarship. He was unable to go back to college at the opening of the fall semester, because both wrists had been broken in his fall. While he was waiting for the broken bones to mend he became interested in the contest and wrote the essay which won him $10,000.

The winners of the other nine principal prizes were:

Second prize, $3,500—Miss Grace Hampson, Edgewood, Rhode Island.
Third prize, $2,000—Miss Grace Morris Price, Pittsburgh, Pa.
Fourth Prize, $1,000—Rev. Warren C. Taylor, pastor of the First Baptist Church, Albion, N. Y.
Fifth prize, $500—Miss F. Fern Ferneau, Ft. Wayne, Ind.
Sixth prize, $400—Mrs. Chris Mason Bradley, San Francisco, Calif.
Seventh prize, $350—Mrs. Frederick H. Kranz, Buffalo, N. Y.
Eighth prize, $300—Mrs. Rose Fine Young, Sherman, Texas.
Ninth prize, $250—Miss Ethel M. Arnold, Manhattan, Kans.
Tenth prize, $200—Charles Paget Golding, Cambridge, Mass.

Brief extracts from the three essays which won first, second and third prizes show how well these young people had digested the principles of the program. In Mr. Harley's essay is this striking paragraph:

"The battle with bacteria has shown us that below 50 degrees reproduction is greatly retarded. . . . Thus the modern housewife can eliminate costly spoilage and buy in greater quantities at cheaper prices. . . . But the greatest value of well-kept food is in safeguarding health. Fresh, crisp vegetables and fruits are more palatable, more nourishing. Low temperature keeps germs in check, so that the body is able to resist disease. Above all benefits of proper food preservation is this vital function."

Miss Hampson, in her second prize essay, said:

"Cold is as harmful to germs as germs are to us. Fifty degrees is the crucial point in food values—for as degrees mount, your 'food efficiency' must of necessity show a corresponding decrease."

Miss Price, in the essay which took the third prize, had this summary of the whole situation:

"Studies of various foods show that at temperatures ranging from forty degrees to fifty degrees, bacteria multiply about 1/400 as rapidly as above fifty degrees. Hence foods should be kept below the safety point both summer and winter."

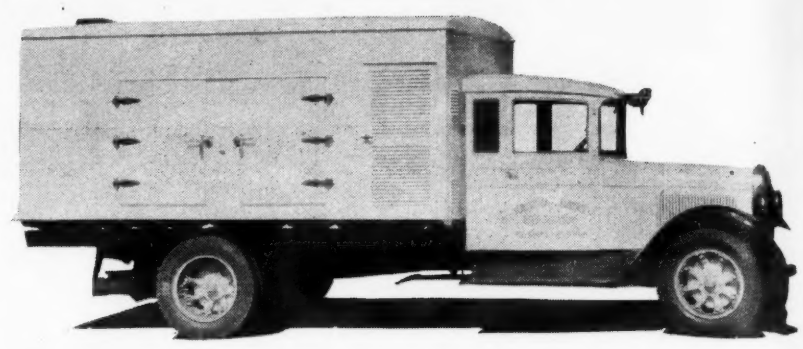
The backbone of the promotion of the National Food Preservation Program consisted of double page or full page advertisements in the September issues of seven leading national magazines, by which the message of the program was repeated more than 18,000,000 times. The schedule consisted of two double-page advertisements in the *Saturday Evening Post,* one double page spread in *Good Housekeeping,* and single pages in *Collier's, Liberty, Cosmopolitan, Woman's Home Companion,* and *Pictorial Review.*

In the promotion of the plan through local councils and individual companies, more than 5,000,000 of the booklets, "How to Safeguard Your Family's Health," were distributed to inquirers. Nearly 700,000 small thermometers, with the 50-degree danger line marked in red, were given away; nearly 5,000,000 milk bottle jackets, bearing a brief Food Preservation message, were distributed through milk companies; 40,000 truck banners flaunted the campaign slogan through the streets of cities.

All this gigantic promotional movement was carried out under the direction of the National Food Preservation Council, an organization formed for that purpose. It was headed by Matthew S. Sloan, of New York, and its members were representatives of the agencies that endorsed and in most cases actively participated in the movement. These agencies were:

Bureau of Home Economics, U. S. Department of Agriculture.
General Federation of Women's Clubs.
American Institute of Refrigeration.
National Retail Furniture Association.
American Bottlers of Carbonated Beverages.
Society for Electrical Development.
American Gas Association.
Association of Edison Illuminating Companies.
National Refrigeration Manufacturers Association.
Refrigeration Division, National Electrical Manufacturers Association.
Refrigeration Machinery Association.
National Electric Light Association.

Auxiliary Motor Operates Unit During Stop-over Period



PLYMOUTH mechanically refrigerated truck bodies are designed for use by ice cream manufacturers, meat packer, florists, confectioners, fruit and vegetable dealers. The bodies are insulated with Dry-Zero. Power is furnished by a gasoline engine belted to the refrigerator compressor. This engine is controlled manually from the cab of the truck. When the truck is in the garage an auxiliary electric motor can be attached to a light socket and thus the contents can be kept at any desired temperature. Temperature control, while operated from the electric motor, is automatic. The bodies are manufactured by Plymouth Body Works, Plymouth, Ind.

Your customers know Celotex is successful insulation

For your own information, here are a few of the reasons why Celotex is rapidly taking the place of other insulating materials in so many of the leading electric refrigerators.

YOUR refrigerators are easier to sell when they are insulated with Celotex. For all your prospective customers already know Celotex . . . appreciate its remarkable power to shut out heat.

The effectiveness of Celotex has been sold to men and women everywhere through millions of dollars' worth of convincing advertisements . . . the very name stands for successful insulation.

Other selling points may be too technical to get the attention they deserve. But Celotex insulation is an argument that never fails you.

The fact that Celotex is as fine an insulation as any material on the market is important. But it is even more important to the salesman on the floor, that people understand this fact . . . that they welcome Celotex insulation without further explanation and argument.

A special kind of Celotex . . . To meet the rigid requirements of refrigerator manufacturers, a new kind of Celotex has been developed . . . fabricated by special processes that increase its insulating efficiency to the highest possible point.

Cut to fit specifications . . . Celotex is furnished cut to fit exact dimensions, so that each insulated area is covered with a single board of exactly the required thickness. No open joints or seams, no possibility of sagging.

Clean, odorless, sanitary . . . Celotex is made from the long, tough fibres of cane, which contain the millions of tiny sealed air cells that produce its remarkable insulating effect. These fibres are carefully sterilized. They are entirely odorless. No insulation is more sanitary in every possible way.

Rigid strength combined with lightness . . . The great strength of Celotex boards is one of the most important features of this remarkable material. These boards actually add to the strength and durability of the refrigerator cabinet . . . reinforce the walls and the frame. Yet they are so light in weight that the refrigerator is just as mobile as ever.

✣ ✣ ✣

Use Celotex in every sales talk

Insulation is of vital importance because it keeps the running time of the refrigerating unit down to a minimum . . . aids economical operation . . . adds to the life of the unit.

And when you talk about Celotex you are on familiar ground. Here is one point that your prospects thoroughly understand—one point where they are sure to agree with you intelligently.

Use this argument to lead into your closing. Make Celotex help land the order.

✣ ✣ ✣

THE CELOTEX COMPANY
919 North Michigan Avenue
CHICAGO, ILLINOIS
Mills: New Orleans, Louisiana
Branch sales offices in many principal cities
(See telephone books for addresses)
Sales distributors throughout the World
In Canada: Alexander Murray & Co., Ltd., Montreal

The word CELOTEX (Reg. U. S. Pat. Off.) is the trademark of and indicates manufacture by The Celotex Company Chicago, Ill.

CELOTEX
BRAND
INSULATING CANE BOARD

ICE-O-MATIC DISTRIBUTOR FOR IOWA NAMED

Des Moines, Iowa.—Ice-O-Matic Refrigerator Co., 700 Mulberry St., has been appointed distributor for Ice-O-Matic refrigerators, manufactured by Oil-O-Matic Heating Corp., Bloomington, Ill.

MYSTERIOUS KNIGHT HERALDS OPENING OF NEW TRENTON STORE

Trenton, N. J.—A fantastic Knight with his glistening, gleaming white castle aroused the curiosity of the people in this city for one week prior to his appearance on Saturday, October 26.

The Knight was a real figure stepping out of the children's story book entitled, "The Knight in His White Castle," and he featured the opening of the new Judson C. Burns showroom, located on the Lincoln Highway at the corner of State and Warren Streets, in the heart of New Jersey's capital.

For a week before the opening, Trenton was placarded with teaser copy announcing the coming of the Knight. At 11 o'clock on Saturday morning the placards in the showroom window were removed and the crowd outside saw the real Knight, in his shining armor alongside of his White Castle—a G75 General Electric refrigerator.

Throughout the day the sidewalk was blocked by interested spectators watching the mechanical man in uniform perform in the window. The plan behind the affair was not to attempt to bring people into the showroom, but rather to let everyone know that Judson C. Burns had opened a store in Trenton. White Knight story books were distributed to children who were accompanied by their parents.

Henry Siegrist, one of the first General Electric salesmen to join the Burns organization, has been appointed manager of the new store.

SIMPLIFIED SIZES FOR ICE CREAM CARTONS AND MOULDS ARE APPROVED

Washington, D. C.—A simplified schedule of sizes of ice cream cartons and molds was unanimously approved at a general conference of representatives of manufacturers, distributors, and users of these products, held Dec. 4, under the auspices of the Division of Simplified Practice of the Bureau of Standards, Department of Commerce.

The recommended simplified sizes of machine-filled cartons are:

U. S. standard No. 1 pint—3-3/16" x 3½" x 2-11/16".

U. S. standard No. 2 pint—2-7/16" x 3⅛" x 3-15/16".

U. S. standard No. 1 quart—2-11/16" x 3½" x 6¼".

U. S. standard No. 2 quart—2-7/16" x 3⅛" x 7¾".

The dimensions of the recommended standard 2-gallon ice cream mold are 26" x 6¼" x 2⅞".

This recommendation, subject to regular annual revision, is to be effective January 1, 1931. Carton manufacturers, however, will be prepared to accept orders at once for standard cartons.

GENERAL FOODS PLANS TO QUICK FREEZE OYSTERS

Bluepoints Co., Inc., a new subsidiary of General Foods Corp., has taken over the assets of North Atlantic Oyster Farms, Inc., and contemplates the extension of the Birdseye Quick Freezing process, recently acquired by General Foods, to the oyster industry, permitting national distribution of oysters in package form.

The Birdseye process freezes any perishable food to a temperature of 50 degrees below zero so quickly that virtually no cell-destroying ice crystals have time to form, thus preserving the natural freshness of the food. This process has already been used in the marketing of fish and meats.

DIES SUDDENLY AT A. S. R. E. CONVENTION

E. H. Pearson, manager of the New York office of the Electric Machinery Mfg. Co., died suddenly during the dance following the banquet of the American Society of Refrigerating Engineers at the Hotel Pennsylvania, Friday evening, December 6, 1929. Mr. Pearson had been taking an active part in the festivities, and when he fell forward in his chair it was thought that he had fainted. He was taken to an adjoining room and expired soon after the house physician reached his side. His home was in Larchmont, N. Y.

NEW CODE PROPOSED FOR ST. LOUIS

St. Louis, Mo.—A proposed refrigeration code now under consideration would give the City Building Department supervision of the installation of all electric and gas refrigeration systems. Provision is made for permits, inspection fees and for the employment of two inspectors. The proposed ordinance was prepared under the direction of the Health Commissioner and the Director of Public Safety.

Celebrate End of "Bull Market" Contest

Manhattan Sales Division Jubilee, which was held at Keene's on West 44th Street, New York City, N. Y., October 23, 1929. These men were winners of the "Bull Market Contest," held by Rex Cole, Inc., General Electric distributor.

Spending Money to Make It

THERE are two ideas about making money—the European and the American," says Robert Ruxton. "The European idea is to make out of what is saved. It is the kind of idea that eventually acquires a modest competence in 'the three per cents,' provided it is successful.

"The American idea is to spend money to make money. It has its faults, but it has also made a nation of millionaires and wealthy men."

Ruxton draws attention to some comment by J. George Frederick: "An able executive I know told me some time ago that the two big men he has worked for in the past sixteen years said only a few words to him, but that oddly enough, one of the things each said to him was, "Don't be afraid to spend money!'"

Frederick continues: "The least known art in business, it seems to me, is spending. You hear a lot of talk about making money. I'd a lot rather talk about spending money, because that's the technique and genius of business . . . The heart of the business game lies in spending money; with the end in view to make money, of course, but the spending is the man's size part of the job."

This is an interesting point of view, containing some truth.

It is certainly true that in business the willingness to spend money is the price of success. The man who does not keep pace with the mechanical and technical progress of his industry soon finds himself in the mire of low quality and high costs. Only by scrapping old machinery and installing improved machinery, and by expanding his plant to meet the needs of his customers, can he maintain leadership.

I have in mind a man who left a successful company because he was dissatisfied with the endless spending of profits in a program of improvement and expansion. He bought a business of his own and tried to pursue the opposite policy, taking out everything and putting in nothing. This policy succeeded for a time, due to the loyalty of friendly buyers. Price and quality comparisons soon began to reveal that jobs were being produced in an out-of-date plant.

This meant that the owner had a choice of modernizing his plant, or dropping out of competition for high-grade work.

He dropped out, and his former company went ahead, making a real contribution to the welfare of its community and giving its owners a substantial living income.

What those who envy the profits of business men do not understand is that profits cannot be eaten. They must be re-invested. The business men who try to eat their profits—to spend them in personal consumption—soon find themselves slipping in the race. Less greedy and less cautious competitors take the leadership.—*Brushings.*

MASON AND BURRITT VISIT EASTERN DEALERS

Detroit, Mich.—G. W. Mason, president, and H. W. Burritt, vice-president of Kelvinator Corp., are continuing their swing around the country, visiting distributors and dealers and making a survey of business conditions in general.

Mr. Mason and Mr. Burritt returned in mid-November from a trip to the Pacific Coast and Southwest, part of which was made by airplane. Their present itinerary includes Newark, Baltimore, Worcester, Providence, Hartford, Springfield, Syracuse, Rochester, Buffalo, and Pittsburgh.

RADIO SALES GREATER IN FALL MONTHS

According to statistics made available by the Electrical Division of the Department of Commerce, retail sales of radio equipment seem to attain their greatest volume during the months of October, November and December, for 40 per cent of all sales reported for the year ending July 1, 1929, were made in those months. Twenty-three per cent of total sales were made during January, February and March of 1929; 16 per cent during April, May and June, 1929; and 21 per cent during July, August and September, 1928.

The average business done by a retail radio dealer during the first quarter of 1929 is estimated at $3,368, while during the second quarter it was $2,349. During the third quarter of 1928 it was $3,030, and during the fourth quarter $5,780, with a total for the twelve months' period of $14,527.

ST. LUKE'S HOSPITAL, TOKIO, JAPAN, TO BE EQUIPPED BY SEEGER

St. Luke's International hospital, Tokyo, Japan, which was completely destroyed during the earthquake of 1923, is being rebuilt and will be equipped throughout with refrigerating machinery supplied by York Ice Machine Co., Brooklyn, N. Y. The refrigerating machinery is of the ammonia type with a circulating brine system for the various refrigerators.

Nine carloads of cabinets, finished with vitreous porcelain enamel on both exterior and interior surfaces and trimmed with chrome-nickel steel, satin finished, will be furnished by Seeger Refrigerator Co., St. Paul, Minn. All cabinet hardware will be chrome plated. A requisite of the contract for the cabinets was that drawings and a description for erecting them should be supplied so that personal supervision from the Seeger factory would not be necessary.

The entire food service has been laid out by Percy Clark Quintard, New York City, who is consultant to the owners in the planning of the kitchen and food service. Food service and dish-washing will be centralized on the main floor. All trays will be set up and inspected under the supervision of the dietician and sent to the various floors in trucks.

Dr. R. B. Teusler, medical missionary, has built up St. Luke's Hospital as an institution during the twenty-five years of his residence in Tokyo. He started it in 1902 with a small bungalow which had a capacity of eight patients. The new structure, when completed, will house and feed seven hundred people.

Rex Cabinets

The Products of Master Craftsmen

The usual basis of preference for refrigeration cabinets is ▾ distinctive style, exquisite finish, unusual convenience, and lasting service.

▾ ▾ ▾

The merit of REX Cabinets has always been founded on master craftsmanship. With this in mind ▾ look to the new 1930 line of REX Cabinets ▾ superb, distinctive, dependable ▾ the choice of many manufacturers who demand the utmost in refrigeration cabinet construction.

Rex
THE COMPLETE LINE OF MECHANICAL REFRIGERATION CABINETS

Complete detailed information will be sent upon request...

REX MANUFACTURING COMPANY

Connersville, Indiana, U. S. A.

BOOKLETS DESIGNED TO STIR INTEREST OF STOREKEEPERS

As an aid to dealers in developing prospects during the present commercial sales campaign, Kelvinator Corp. has designed ten pieces of attractive literature for dealers to mail, or deliver through salesmen, to local butchers, grocers, florists and caterers. The literature has a threefold purpose; to start prospects thinking about commercial refrigeration, to bring immediate inquiries and to pave the way for salesmen. Dealers send out the mailing pieces discriminately, timing them to reach the prospect the day the salesman calls or the day preceding his call.

No. 1 and 2 are folders designed to create a general interest in all prospects of commercial refrigeration. The titles are; "Worthy of Your Consideration" and "Business Prestige."

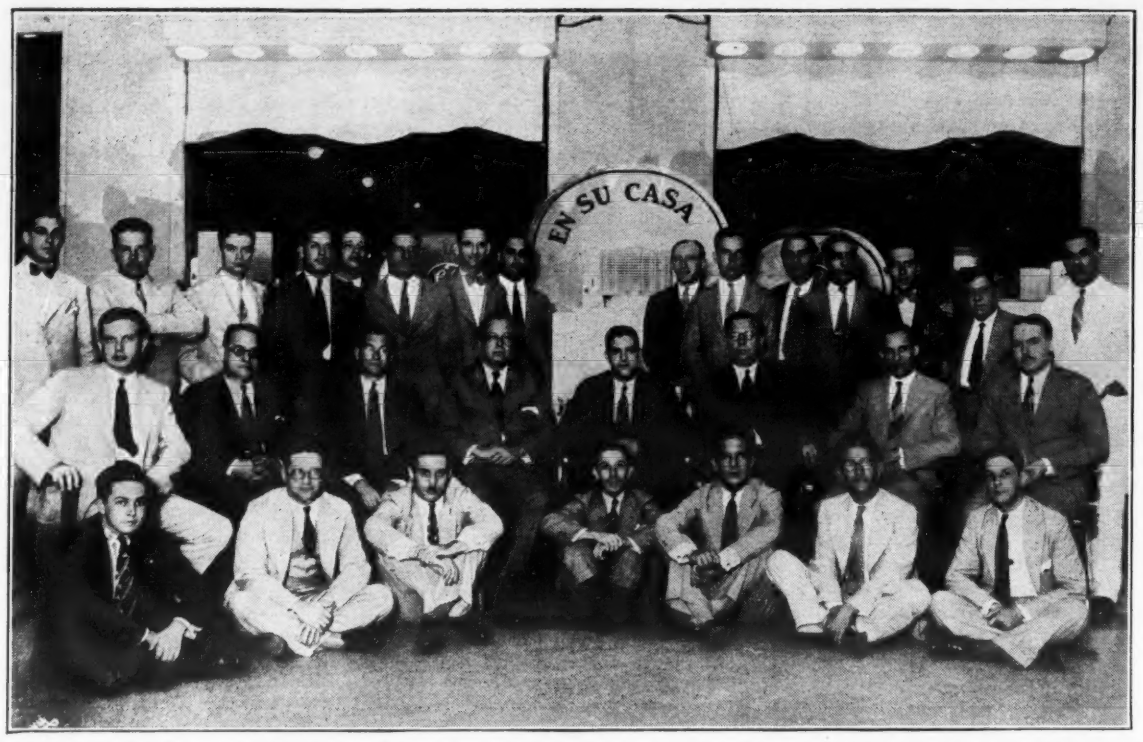
Folder No. 3, "It's a Fact," talks to the butcher in his own language, giving facts of interest to him. A vocational booklet, "When Meat Merchants Acknowledge Facts," is a piece which the salesman personally delivers to the prospect.

Folder entitled, "At 10 p. m. Saturday, You Will Know," contains a story intended to interest grocers. Another vocational booklet with the title, "It's a Fact," tells the advantages of electric refrigeration to grocers and delicatessen owners.

"A Message to Florists," and "From the Florist's Standpoint," are similar to the general makeup of the other vocational booklets.

The campaign literature to sell restaurants, hotels and clubs includes two folders, "On the Hottest Days," and "Meeting Today's Demands."

General Electric Men See Bigger Market for Refrigeration in Cuba



GENERAL Electric refrigerator salesmen of General Electric Co. of Cuba and Cia Cubana de Electricidad, together with George S. Patterson and Charles E. Roesch, president and vice-president, respectively, of Florida Electric Refrigeration Co., St. Petersburg; W. J. Daily and Cedric Smith, manager of Sales Promotion division and manager of Credit Accounts division, respectively, Refrigeration department of General Electric Co., Cleveland, Ohio, who met at Havana, Cuba, recently.

Standing (left to right) are: J. V. Cardenas, J. Delgado O'Neill, R. Karman, B. J. Wilrycx, T. L. Montoro, E. Dominguez, M. Herran, L. G. Bardisa, G. Menasce, C. H. Warner, Auditor, General Electric Co. of Cuba; F. Gonzalez Estrada, J. A. Gomez, Fernando Malberti, A. O. Anaya, B. Caballero. Sitting on chairs (left to right) are: H. E. Johnson, sales manager of General Electric Co. of Cuba, C. E. Roesch, W. J. Daily, G. S. Patterson, F. A. Bertran, manager of refrigerator sales, General Electric Co. of Cuba; C. G. Smith, J. C. Veve, M. F. Amezaga, manager of refrigerator sales for Cia Cubana de Electricidad. Sitting on floor (left to right) are: C. F. Palmerton, C. B. Wilrycx, M. M. Winetraub, J. M. Fernandez, J. Recio, S. Lopez Miranda, and R. Suarez Caral.

SENATOR COPELAND WRITES BOOKLET ON HEALTH IN THE HOME

"Where overeating has slain its thousands, deteriorated food has slain its ten thousands," says Dr. Royal S. Copeland, former Health Commissioner, New York City, now United States Senator, in a small booklet, "The Wherefore of Refrigeration," issued by Refrigeration Department of General Electric Co., Cleveland, Ohio.

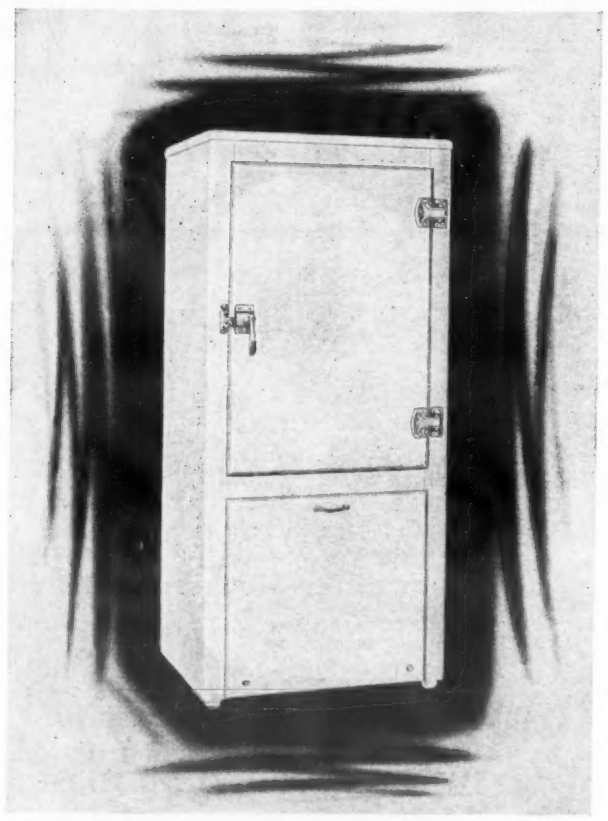
The doctor continues by saying: "While the country is becoming ship and aeroplane-minded, it is infinitely more important that it become refrigerator-minded. That the country has failed to do this as yet is evidenced by the fact that half of the families in the United States have no means of refrigeration. The reason the country is not refrigerator-minded is because people are ignorant of the danger of germs, bacteria and bacilli, the invisible agents of destruction.

"One easy and usual method for disease producing agents to gain admission to the body is through food, and if food is kept at an improper temperature it is the soil in which such germs multiply and gain vigor for their deadly attack; it is amazing how a planting of germ life can increase a million and a billion-fold within only a few hours."

In closing, Dr. Copeland says: "It is pleasing to know that as long as the temperature in the refrigerator is kept below 50 degrees, bacterial activity is tremendously retarded, but reliable statistics show that less than one-half of the country's population use refrigeration at any time of the year, and only about 15 per cent of the families use it the year round. The natural born thrift of the American housewife makes her unwilling to waste any left-over foods, but she should learn that unless these left-overs are properly refrigerated they might better be thrown in the garbage pail."

The new LP-H40 Model

Universal Cooler



~means More Sales *and* Easier Sales

THE new LP-H40 Model Universal Cooler is a quality refrigerator in every sense of the word. It has attractive lines, porcelain interior with rounded corners, lacquer exterior, satin finish hardware and a well planned shelf area.

This particular model is strictly self-contained. It eliminates any installation cost as it is completely assembled and is ready for plugging in. It is of a size that will meet the requirements of the majority of apartments and homes and is a marvel for quietness, efficiency and durability.

We are offering this model as a leader to our regular line at a most attractive price.

Complete information on request

Universal Cooler Corporation

Detroit, Mich. - - - Windsor, Ontario, Canada

What to Do with the Old Ice Box Taken in Trade

By Willis Parker

SINCE many electric refrigerator dealers consider it necessary to take in a used ice box as a part of the initial payment on an electric refrigerator, the question arises, "What becomes of the used ice boxes?" According to J. M. Eakin, manager of the electric refrigeration department of the Public Service Company of Colorado, Denver, 75 per cent of the boxes taken in trade on new merchandise are junked. Not worth the effort, he says, to sell.

But the 25 per cent that are salvaged and sold to ice users serve as a medium of uncovering future prospects for electric refrigeration. The names and addresses of the purchasers are retained on file, and sooner or later they are called upon by the company's salesmen.

It is said by some electric refrigerator sales authorities that, since there are so many persons in the country who still keep their food products in cellars and never have become accustomed to ice or any other form of modern refrigeration, the transition from a cellar to an electric refrigerator is too abrupt and that it is well to permit an intermediate stage, which is the use of ice and an ice box. When they become accustomed to the use of ice, then they are in a better position to understand the merits of mechanical refrigeration, and about half of the sales effort is accomplished.

Even in the selling of the 25 per cent of the boxes that are saved, Mr. Eakin says that no special sales effort is put behind them. They are not reconditioned and are sold "as is." The customer is shown what boxes are on hand, is given the price, and is permitted to select what he wants without any pressure from the salesman. This naturally reduces sales expense. The firm used to allow a maximum of $20 on a used box. More recently the maximum has been $10, and there is a possibility that it will be cut still farther.

In a town in the southern part of Colorado, we found one dealer who is making a profit on used ice boxes. He makes a practice of loading several of them on a truck and visiting small towns in his region and selling them to people who had never used ice before. He is able to add enough on to the price of the boxes to recover the amount allowed in the trades and to cover the cost of selling plus a profit.

In a community in the northern part of the state we found that dealers are disposing of the ice boxes to the ice company, the manager of which reconditions them and either sells them to otherwise non-ice users or rents them at a dollar a month. In this instance there seems to be no rivalry between electric refrigerator dealers and the ice company. The latter takes the stand that regardless of the number of electric refrigerators sold in his community, there are still plenty of opportunities for ice sales.

NORGE COMPLETES MOVING OPERATIONS

Detroit, Mich.—Moving operations of Norge Corp., a subsidiary of Borg-Warner Corp., were completed recently, when the final installation of machinery was made at its new location, 7600 Central St.

This move of Norge Corp. was made necessary in order to meet the demands of the expansive sales program which will be put into effect early in 1930.

Norge Corp. manufactures refrigerating units for domestic and industrial purposes. The new building into which it moved is owned by the Morse Chain Co., another Borg-Warner subsidiary.

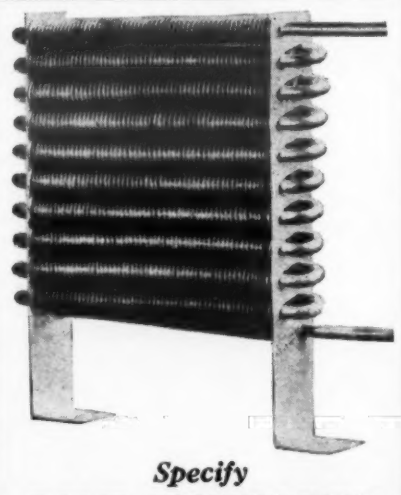
U. S. SURVEYS MARKETS, OFFERS DATA TO REDUCE COST OF DISTRIBUTION

Washington, D. C.—A 535-page handbook of market data, that makes it possible for distributors to more efficiently plan sales quotas, allocate advertising expenditures and outline sales territories, has been published by Department of Commerce.

The narrowing of profit margins has made it necessary for the distributor of merchandise to refine methods of operation to meet conditions in each unit of trade territory. In view of this fact the handbook is an aid in eliminating waste in distribution methods.

Three general types of markets are considered in the new handbook, general consumer, farm and industrial. In each instance, figures on the factors which determine sales potentialities are presented, thereby permitting an accurate evaluation of each particular territory. Among the factors considered in the general consumer market are income-producing activities, bank deposits, postal receipts, newspaper and magazine circulation, automobiles registered, and trade outlets. For farm markets are given figures on such items as cash income, livestock products, etc. Under industrial markets are given the number of plants, wage earners, wages paid, value of products and value added by manufacture. County distribution of mineral production is shown, together with the number of employees in the mining industry.

A unique feature of the handbook is the showing by countries of manufacturing plants in each of the 340 industries reported to the Bureau of the Census, making it possible to localize manufacturing industries more definitely than heretofore, and trace the concentration of these industries by counties rather than states. The desirability of having this information by counties is indicated by the fact that 73 or 2 1/3 per cent of the 3,073 counties of the country account for more than 60 per cent of the total value of manufacturing output.



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ROME CONDENSERS

Made of heavy gauge deoxidized seamless copper tube. One piece construction.

Designs for all requirements.

Rome-Turney Radiator Co.

ROME, N. Y.

DEHYDRATED TUBING FOR QUICK USE

Made to A. S. T. M. Specifications (B 68-27T)

Shipped Rush from Stock

WOLVERINE TUBE CO.

SEAMLESS COPPER BRASS & ALUMINUM

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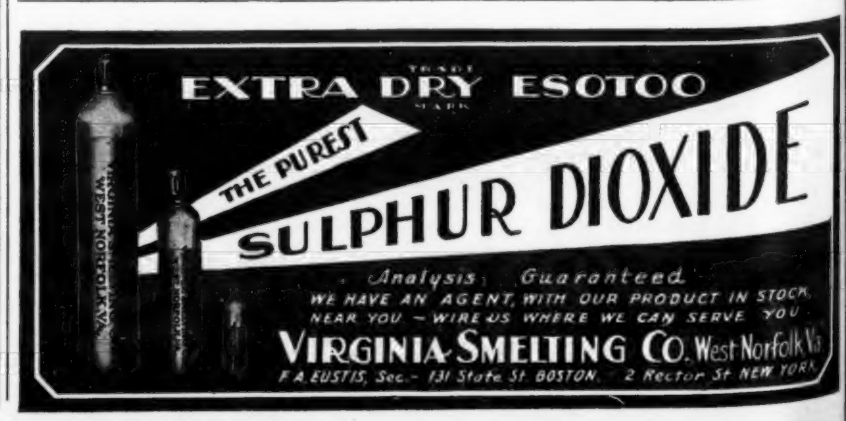
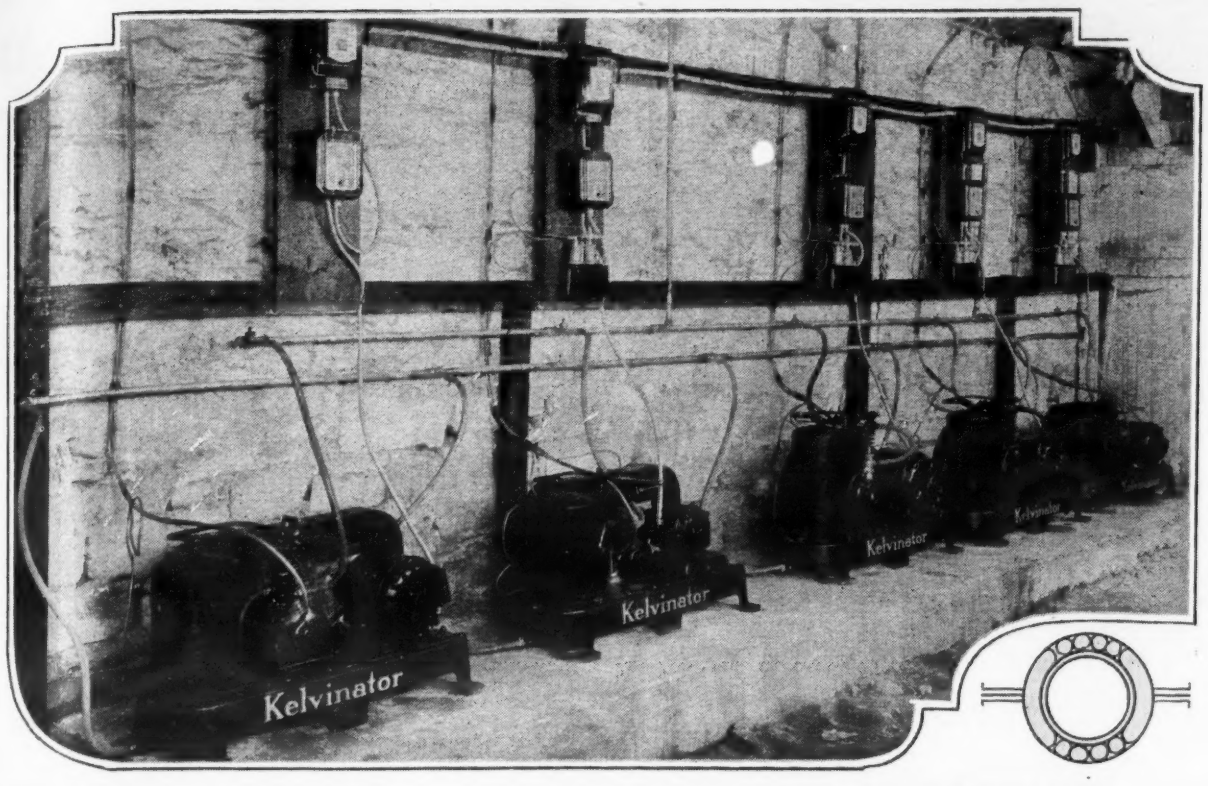

EXTRA DRY ESOTOO
THE PUREST
SULPHUR DIOXIDE
Analysis Guaranteed
WE HAVE AN AGENT, WITH OUR PRODUCT IN STOCK, NEAR YOU — WIRE US WHERE WE CAN SERVE YOU
VIRGINIA SMELTING CO. West Norfolk, Va.
F. A. EUSTIS, Sec.- 131 State St. BOSTON. 2 Rector St. NEW YORK

Famous Pittsburgh Eating House Places Kelvinator Units in New Restaurant



Zubers, one of Pittsburgh's famous German eating places, of pre-prohibition fame, has opened another restaurant at 23 Graeme St. Kelvinator equipment has been installed, the above photograph showing five compressors, which take care of the restaurant's cooling needs.

ANTICIPATES INCREASED ACTIVITY IN INDUSTRY

New York, N. Y.—Speaking for the organized electrical and radio manufacturers, Clarence L. Collens, president of the National Electrical Manufacturers' Association, states that he anticipates "a return to normal activity during the first six months of 1930, but at levels which will be in step with the steady continued growth of all industrial activity in this country."

"As a whole the electrical manufacturing industry has enjoyed real prosperity during 1929," says Mr. Collens. "In many branches the activity has been considerably above normal, and in all above the levels of 1928. Inventories are no greater than a year ago and represent a healthy condition in relation to the volume of business done. The anticipation for the first six months of 1930, except possibly in radio, is a return to normal activity but at levels which will be in step with the steady continued growth of all industrial activity in this country.

"Our program for the year 1930 should be directed towards: (1) the maintenance of normal activity; (2) the extension of all research investigations, and (3) the modernization of industry. The fundamental slogan behind all effort should be that announced by President Hoover at the recent Washington conference—WORK.

"Research should not be limited to the scientific investigation of materials and the development of new products, machines, and methods, but should extend into the realm of the facts and economics affecting our industry, more accurate information regarding the current business situation, its trends and inventories, and some investigation of the costs and channels of distribution.

"The year 1930 with its return to more normal conditions, backed up by the funds available from the prosperity of 1929, affords a real opportunity for effective work in the modernization of industry. There are still too many obsolete, inefficient machines and methods in all industry. We must set our own house in order, but can also do constructive educational work in other industries. This means extension of modern industrial lighting, greater use of electric heat and electric welding in manufacturing processes, the introduction of modern efficient machinery properly motorized to give improved quality and lower costs, and more labor-saving machinery in the flow and handling of all materials.

"An effective program of research and modernization in industry motivated by the slogan—WORK—will not only promote normal business in all electrical lines during 1930, but will lay an important foundation for future prosperity."

COPELAND EMPLOYEES TO HOLD CHRISTMAS PARTY

Mt. Clemens, Mich.—The first annual employees' Christmas party to be staged by Copeland Products, Inc., will be held Friday evening, Dec. 20, in the engineering department of the company's new plant. Dinner, dancing, a Santa Claus party, and the giving away of a Deluxe Model refrigerator will feature the event. The party is under the direction of the Copeland Athletic Association. This year's gathering, besides initiating what is expected to be an annual custom, is intended to help all members of the organization to become acquainted with one another, and also to informally dedicate the new plant.

DEAF AND BLIND INSTITUTE EQUIPPED BY COPELAND

Denver, Colo.—Colorado's school for the deaf and blind has just been equipped with a Copeland N-5 refrigeration system. The installation was made by Knight-Copeland Co.

FLINTLOCK CONDENSERS

Full Capacity

With Every Unit

FIN AND TUBE SAME SOLID PIECE OF MATERIAL

FLINTLOCK CORPORATION

4461 W. Jefferson Ave.
DETROIT, MICH.

COMMERCIAL REFRIGERATORS

Standard Models and Special Designs

"SWEAT-PROOF" DISPLAY COUNTERS

For use with all systems of Electric Refrigeration

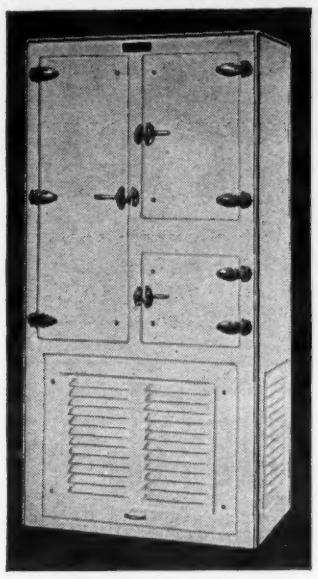
DEALERS WANTED

Liberal discount to dealers. An ideal line to handle in connection with the sale of commercial units. Write for proposition. Catalog sent on request.

KOCH REFRIGERATORS

North Kansas City, Mo.

"It was built by BOHN"



The handy base cabinet may either be used for refrigerating machinery or the storage of cooking utensils, canned goods, vegetables, etc.

The name BOHN is our warranty that the finest materials obtainable have been utilized by skilled craftsmen and refrigeration engineers to build for you this beautiful and scientific product—an all-porcelain BOHN refrigerator.

BOHN installations include many of the leading hotels, restaurants and hospitals in America.

BOHN refrigerators are used exclusively on all Pullman-built railway dining and buffet cars.

The United States War Department has purchased hundreds of all-porcelain BOHN refrigerators for our army barracks and battleships.

In choosing BOHN refrigerators, discriminating home owners throughout the country have given BOHN a representative list of which any manufacturer might be proud.

Write for details of the remarkably low prices that are now prevailing.

BOHN REFRIGERATOR COMPANY
SAINT PAUL, MINNESOTA

Made exactly to size and hermetically sealed

READY to slip instantly into place, Balsam-Wool Sealed Slabs not only speed up assembly, but provide unsurpassed insulation in mechanical refrigerator units.

Manufacturers who are using these slabs *know* that they are getting the maximum insulation at low cost.

Balsam-Wool—an accepted insulation standard in the building industry—has an average thermal conductivity of not exceeding 6.0 B. t. u. per square foot, per 1" thickness, per 24 hours, per 1° Fahrenheit difference in temperature.

Made to any size specifications, Balsam-Wool Sealed Slabs combine the desirable features of both flexible and rigid insulations. They are light in weight, waterproof, odorless, and will not deteriorate in use.

If you have not seen this remarkable refrigerator insulant, let us send you a sample and complete information.

WOOD CONVERSION COMPANY

Insulation Division of Weyerhaeuser Forest Products — *Mills at* Cloquet, Minnesota

Industrial Sales Offices: 360 N. Michigan Avenue, Chicago

3107 Chanin Bldg., New York 938 National Press Bldg., Washington, D. C. 3084 West Grand Blvd., Detroit, Michigan

Manufacturers of Balsam-Wool Insulation for Domestic Refrigerators, Motor Buses and Airplanes; Balsam-Wool Refrigerator Car Insulation and Steel Car Insulation; Balsam-Wool Standard Building Insulation

Balsam-Wool Sealed Slabs

ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

PUBLISHED EVERY TWO WEEKS BY

BUSINESS NEWS PUBLISHING CO.

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Development of the Art

THE interest in the subject of research, displayed at the recent meeting of the American Society of Refrigerating Engineers, is most encouraging as a sign of the progressive state of the refrigeration art. There is evidence that engineering executives are becoming keenly aware of the immediate need for additional facts and figures of a very fundamental character. Possibilities for the future development of the industry, which are coming within the range of even ordinary vision, serve to impress the importance of the engineers function.

It is becoming evident that professional men of outstanding ability are needed to meet the many new problems which are now confronting the industry. As a corollary, it follows that these men must be supplied with adequate tools to do the job. Basic scientific data, worked out years ago, has served its purpose nobly, but there is a growing feeling that the time has arrived when the frontiers of refrigeration information should be pushed far beyond the present borders.

The continuous series of arguments which have kept certain sections of the industry in more or less an uproar during the past six months give proof that there is a real poverty of facts. The Chicago situation demonstrated that too little is known about the properties of refrigerants. After all of the discussions, and after citing all available authorities, a large share of the industry is still in a muddle as to what is truth and what is propaganda. The code controversy has clearly revealed the lack of dependable information concerning a variety of methods and materials which are being used in the installation of systems—or which might be used to improve their present performance. The battle over the "50-degree danger mark" brought to light the great scarcity of scientific data on food preservation. The difficulties which have been encountered in the efforts to design refrigeration equipment for a number of special applications, vending machines for example, clearly shows that there are many tricks which are not yet known to the trade.

Some fifteen years ago the idea of the automatic refrigerating machine was given a big push forward. Promotors joined hands with inventors, both filled with high hopes and dreams of riches. The general principles of the device had been worked out and appeared to be entirely practicable. But many enterprises foundered because of difficulties with minor details of the system. The lack of an expansion valve which would not freeze up, a thermostat which would not stick, and other such items were sufficient to wreck hopes and fortunes.

Even today, the problem of lubrication is a stumbling block in the way of successful operation of certain units. With all the money and laboratory facilities which are available to the engineers connected with the great oil companies, it is noticeable that none of the lubricant producers have come forward confidently with an answer to the needs of the refrigeration industry.

It is entirely fitting that Professor Arthur J. Wood, of Pennsylvania State College, who has just completed his term as president of the A. S. R. E., should be the one to emphasize research as a great opportunity for service on the part of the Society. It appears that Professor Wood has been successful in focusing attention upon this subject, and in doing so he has made a great contribution to the industry. Incidently, the NEWS greatly regrets that it cannot publish Professor Wood's scholarly address at the A. S. R. E. banquet in New York City last week. Overtures were made to secure a copy of the paper in order that several thousand readers, non-members of the Society, might be benefited thereby, but an established policy of the Society (peculiarly short-sighted in these days) resulted in a denial of the request.

The NEWS has earnestly endeavored to give the fullest measure of support to activities of the Society, believing that organized engineering thinking is one of the foundation stones necessary in the building of a great and profitable industry. The NEWS has frankly and intentionally added fuel to the argumentative flames which have been burning around the code, refrigerants, safety, food preservation, and other subjects in which the engineers differ in opinion. It has been a matter of little concern to us who won the argument, or who lost it, if the facts could be established—the truth revealed. In doing this the NEWS has been fulfilling the first of its five editorial aims as announced in the initial issue of the paper:

"To encourage the development of the art."

Servel Electric Refrigeration Men Plan Bigger Profits for Dealers

SALES plans for 1930 were outlined at the Servel electric refrigeration convention, November 21-23, Evansville, which was attended by many representatives. A number of new additions to the Servel line were presented at the meeting, although the major portion of the three-day conclave was devoted to the plan of establishing better franchises for the distributing organization. Advertising plans were introduced which include a complete set-up for dealer operation, with intensive factory advertising programs for local territory. New developments in the Servel commercial line were discussed by representatives of the commercial division. Interest at the convention was centered in a small four cubic feet model, which has been added to the domestic line.

SCIENTIFIC AMERICAN DEFENDS ARTICLE ON REFRIGERATION

An Open Letter to E. G. Hitt, Secretary, District Ice Association, Chicago, Ill.

Editorial Office of
THE SCIENTIFIC AMERICAN
New York, Nov. 16, 1929.

We are answering your letter of October 23rd, which criticized our article, "Ice by Wire," which appears in the November issue of *The Scientific American*, rather fully, as several points are brought out that a more or less public ventilation will be of service to the public.

Your letter is misleading, as you are constantly referring to refrigerators, good, bad and indifferent, while we concerned ourselves with one refrigerator only; therefore, much of your letter is beside the mark. All your references as to danger and death are without the pale of this discussion, as the General Electric Company can find no record of any casualties with machines of their make. You even bring in multiple-unit fatalities, which machine is a totally different type of installation. Much of the newspaper clamor was unjustified and was based on no study of properly digested facts, and was entirely without engineering counsel. Much of this talk was about an odorless refrigerant, with which we have no concern, as sulphur dioxide has a pungent odor of its own.

You begin your argument by stating that sulphur dioxide "forms sulphurous acid and in contact with oxygen in the air is oxidized to sulphuric acid—one of the most corrosive substances known to chemistry. Its disintegrating effect on iron and steel is so well known that it requires no comment." The article in *The Scientific American* referred directly to sulphur dioxide, and not to any substance formed due to chemical reaction resulting after sulphur dioxide is mixed with either water or air. In the "*Handbook of Refrigeration Engineering*," by Woodrick, page 207, you will find the following:

"Brass, bronze and copper are resistant to the action of sulphur dioxide, as well as iron, steel and nickel."

The construction of the General Electric refrigerator positively eliminates any possibility of either air or moisture coming in contact with the sulphur dioxide. The refrigerator is completely dried out and exhausted of air before it is charged with sulphur dioxide. After this operation the unit is hermetically sealed and enclosed in a steel air-tight casing with the aid of great hydraulic pressure. Since there is no external connections or stuffing, both moisture and air are permanently sealed out.

Sulphur dioxide also is non-explosive. The Chicago papers and other publications have printed big headlines telling the public about the *big explosion*. This, to the average person and through general usage, infers that possibly a building has been wrecked or at least considerable damage done due to a violent explosive force. As indicated by the quotation given below, which was taken from the *Handbook of Mechanical Refrigeration*, by MacIntire, on page 224,

"It is not a combustible gas, and there is no danger of explosion from leaks or in the event of accidents to the compressor or to the pipe system."

Surely a gas *leak* is not an *explosion* in the generally accepted meaning of the word. Such newspaper headline clippings submitted as evidence are as far as we are concerned without any weight in a technical discussion, which involves both chemistry and engineering.

Sulphur dioxide, we believe, is the least dangerous of all refrigerants. It is non-explosive and always carries with it a warning signal characterized by its odor. Sulphur dioxide has a very pungent odor, and is readily detected even in extremely small quantities. If the quantity of sulphur dioxide is increased, the concentration becoming greater, the sulphur dioxide in contact with moisture in the throat and nose forms a very weak acid. This is irritating, of course, and will drive a person from the room before any ill effects will result. As the concentration is further increased breathing becomes more difficult because of the suffocating effect.

Below are two quotations taken from the *Handbook of Refrigeration Engineering*, by Woolrick:

"Sulphur dioxide is a relatively harmless gas. It will produce some throat irritation if breathed freely, and when mixed with water, the solution will produce an itching on parts of the human body that are bathed in it. Continued exposure to the gas seems to make the individual more or less immune to its action."

"The author found that, after working in sulphur dioxide fumes for some weeks, he could scarcely detect any discomfort. Several cases are on record of operators being completely sprayed in sulphur dioxide liquid and although their sight was temporarily impaired and their skin irritated, their recovery was rapid and complete."

The fact that sulphur dioxide is the refrigerant that has been suggested to be mixed with non-odorous refrigerants is conclusive evidence that its odorous qualities are desirable.

The fact that the Chicago investigation committee did not prohibit the use of sulphur dioxide as a refrigerant is cited as argument that they do not consider it dangerous, so long as the quantity that could possibly escape should a leak occur is restricted.

You make a statement that the makers of the refrigerator in question, owing to the refrigerant used, have an absolute rule prohibiting repairs being made on the refrigerating machines in the household, repairs being permitted only at their service stations. The unit is completely enclosed and sealed with steel walls, and is put together with the aid of such powerful presses and other machinery that no service can be done in the field, no matter what refrigerant was used. There is no temptation for the owner to tinker with the mechanism, as he cannot get at it. If there is any tearing down of the refrigerator required, it should be done at the factory, under proper supervision, with skilled labor and where the right equipment is available.

You also object to the title, "Ice by Wire," and the sub-title, "The Tireless Electric Refrigerating Unit Is Displacing the Ice Man as Surely as Artificial Ice Displaced Nature's Product." The objection to the title is puerile, and the objection to the sub-title cannot be defended, for reasons which we will set forth presently.

Of course, there is no such thing as an electric refrigerator, looking at it from an ice man's viewpoint. The electricity merely drives the motor, which operates the compressor of the refrigerating unit. Neither then, are there any other electrical devices such as:

Electric Vacuum Cleaners
Electric Dish Washers
Electric Locomotives
Electric Phonographs
Electric Fans

—or any number of common electrical appliances. You have continuously presented the argument that there is no

(Concluded on Page 13, Column 1)

The Danger Point

By Sanford F. Bissell
Oak Park, Ill.

In atmosphere that's crisp and cold
We find no germs or greenish mold,

But mercy how they multiply
When temperatures are slightly high!

These pesky mites on food do prey,
And are the cause of their decay.

Some foods are damaged by the frost;
When frozen, nourishment is lost.

Our problem, then, is to define
A proper sort of safety line,

Where all our foods will surely keep
While every germ is fast asleep.

Our Government comes to our aid—
Its scientists this rule have made:

"Perishable foods, to be kept pure,
Must have a constant temperature

So low that germs will be inert,
Yet high enough that frost won't hurt.

Fifty degrees or just below!
A danger point that all should know

To properly protect our health
As well as to conserve our wealth."

FUNNY PICTURES

Seattle, Wash.
Dec. 2, 1929.

Electric Refrigeration News,
Detroit, Mich.

Inasmuch as I am fond of good funny pictures, I certainly enjoyed your new feature on page 19 of your Nov. 20, 1929, issue.

The Williams Kegel cartoon, however, almost totally lacked the necessary accompanying explanation usually furnished by Boob McNut and his friends.

Would like to suggest that in the future this feature contain some of the conventional squirrels, nuts, rat-traps, etc., as well as the necessary comical explanations.

O. G. Tinkey

LEONARD EXPANDS LINE; EQUIPMENT COST OVER $350,000

Grand Rapids, Mich.—A plant expansion program, including the rearrangement of departments and the addition of several straight-line motor-driven conveyor assembly units, representing in all an investment of over $350,000.00, is nearly completed by the Leonard Refrigerator Company.

An entire new manufacturing plan is arranged around moving production lines, the cabinets being completely assembled, finished, inspected, crated and conveyed to the warehouse, ready for shipment, without being trucked about or moved by hand.

The traveling production line shows every stage in the evolution of a completed refrigerator, from the skeleton to the completed product ready to go into a freight car or truck. The line moves at a predetermined speed (which can be altered to suit conditions), the various operations being spaced sufficiently to give the necessary time for completion. A tunnel, under four railroad sidings, connects the main assembly plant and warehouse, contains two automatic conveyor lines, one carrying finished cabinets to the warehouse, and the other bringing parts and materials to the production lines.

A large porcelain furnace is also being installed at the Leonard plant. This electric furnace, costing $65,000.00, has a capacity of 5,000 square feet of steel every hour. A conveyor system operates through the furnace, the finished product coming out in an endless stream. The company previously had six electric porcelain furnaces, and with the new furnace will have a daily production of 240,000 square feet, or 270 tons, double the former porcelain capacity.

Two new drying and baking ovens, with conveyors, each 395 feet long, are being installed to handle enamel and lacquer, including the new Frost Steel line.

Other improvements include a 1,000-foot addition to the overhead tram rail conveyor system, connecting the various units of the Grand Rapids plant, expediting the movement of materials or machinery from one division to another. Three latest type, 125 feet per minute, automatic, self-leveling elevators, are being installed in the plant.

The production capacity, with the completion of present improvements, will be 250 cabinets per hour, or 6,000 per 24 hour day; nearly three times the production capacity of 1929.

Conveyors Move Leonard Refrigerators All the Way from Skeleton to Finished Product

SCIENTIFIC AMERICAN ANSWERS CRITICISM OF ICE ASSOCIATION MAN

(Concluded from Page 12, Column 5)

such thing as electrical refrigeration, but in view of the very common appliances cited above, refrigerators operated by electricity can be accurately referred to as "electrical."

You are apparently of the opinion that the electric refrigeration manufacturers are attempting to put the ice industry out of business. This is decidedly wrong. A very large majority of the purchasers of electric refrigerators are people who have realized the necessity of some form of refrigeration, and have previously to their purchases used ice. They buy electric refrigeration because of the various reasons, which may be generally classed under the following heads:

1. Electric refrigeration preserves foods better than ice refrigeration, because of the lower and more constant temperatures.
2. The air inside an electric refrigerator contains less moisture, which, in turn, further decreases the tendency for bacteria to grow.
3. Electric refrigerators are better constructed, thereby lasting longer and are a better financial investment.
4. Electric refrigerators under most circumstances are more economical when year around refrigeration is considered necessary, and considering the saving and food spoilage.
5. Electric refrigerators are more sanitary than ice refrigerators.
6. Electric refrigeration is a more modern method of preserving foods.

The electric refrigerator is just as modern a method of food preservation as is the automobile the modern method of transportation. Now, if there are about 600,000 refrigerators sold during 1929, and if a majority of these are installed in homes which are now using ice, then the electric refrigerator has replaced the ice box in these cases. True, the ice consumption has increased. The ice manufacturers, facing competition, have expanded into new fields and have actively promoted their business.

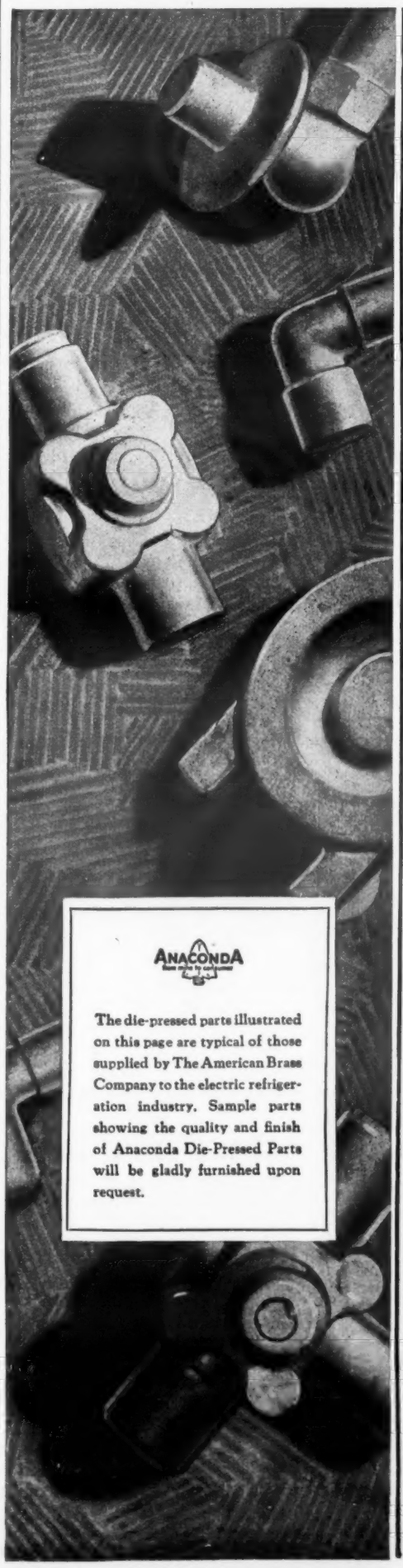
Concerning the question of temperature, you misquote our article, which really says: "Harmful bacteria develop by leaps and bounds in moist temperatures above 50 degrees." Moisture combined with the higher temperatures *usually* found in an ice refrigerator surely promote bacterial growth. Government statistics show that an average American family spends about $600.00 for food each year. About 10 per cent of this is wasted due to food spoilage. The item under discussion is a comparison of the relative advantages of electric refrigeration as compared with ice refrigeration as a means of food conservation. This subject is gone into in considerable detail in a pamphlet by the Director of the Ekroth Laboratories, Clarence E. Ekroth, entitled: "What Value Do You Place on Your Family's Health?" Tests were made in a room having an average temperature of 75.6 degrees F. The temperature in an ice-cooled refrigerator was 53.4 degrees F., and in the electric refrigerator 41.7 degrees F. Samples of bouillon in the ice-cooled refrigerator became sour and decomposed in six days, while in the electric refrigerator the sample of bouillon was found to be sound and fit for food after fourteen days.

It is gratifying to note that from your statement, which reads:

"From a standpoint of economy, efficiency, and service, the Ice Industry has nothing to fear from mechanical refrigeration competition. We do believe, however, that the small ice machine would not have reached its present degree of use had it not been backed by the enormous financial power of the largest motor company, and the largest electric company; coupled with the fact that dangers and disadvantages of small ice machines have been studiously hidden from the public," that the Ice Industry is not fearing the electric refrigeration competition. Competition really develops a business if it is carried out in the right spirit. The use of ice in the past has helped to educate the public to the need of refrigeration, and this has made the sales problem easier for gas and electric refrigerators. It might have been better if you had enumerated some of the disadvantages of electric refrigeration which have been "studiously hidden from the public." The record of the company referred to having nearly 400,000 domestic refrigerators in service, and not one injury or casualty, is quite convincing evidence that the danger surrounding this unit is practically nil. Here again your statement is unsupported by evidence and is evidently including some types of makes which have achieved well-deserved failure. Your fears "that the greater use of household refrigerating machines, as they wear, and those using sulphur dioxide *corrode from the inside*, we will be confronted with increasing explosions (*sic*) with consequent injury and deaths in households and apartments," are quite alarming if based on sound chemical and mechanical data. We have, however, no assurance that these terrible things will happen, and we have so much to consider in the 94,000 fatal accidents in the United States each year that it is purposeless to predict disasters which will probably never occur.

We have now come to the end of this lengthy letter, and we again commend our article as being scientifically sound, accurate as to facts and kindly in tone. There are no errors to be corrected, and, as far as we are concerned, the controversy is entirely ended.

SCIENTIFIC AMERICAN.


ANACONDA
The die-pressed parts illustrated on this page are typical of those supplied by The American Brass Company to the electric refrigeration industry. Sample parts showing the quality and finish of Anaconda Die-Pressed Parts will be gladly furnished upon request.

Cut your Costs
with
ANACONDA
DIE-PRESSED PARTS

ANACONDA Die-Pressed Parts have come into favor with the electric refrigeration industry because they reduce production costs.

These parts are dense, close-grained and uniform in structure, making them gas, air and water tight. Free from hidden flaws common in castings, rejections with Anaconda Die-Pressed Parts are reduced to a minimum. They are smooth of surface, close to dimensions, lighter in the rough and require very little machining. This minimizes scrap losses.

Their high tensile strength—nearly twice that of brass castings—permits a saving in material costs because less metal is necessary. The ability of Anaconda Die-Pressed Brass to withstand sudden temperature changes, corrosive action and mechanical stress is also a factor of importance in many cases.

Manufacturers in many different fields have improved the quality of their product and effected substantial savings in production and material costs by using Anaconda Die-Pressed Parts. These will be supplied machined when called for. Inquiries accompanied by blue prints, sketches or models of parts required will be given prompt attention. Full information on request, or a representative will gladly call at your convenience.

THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Conn.
Offices and Agencies located in the Principal Cities
Canadian Mill: ANACONDA AMERICAN BRASS LTD.
New Toronto, Ontario

ANACONDA
COPPER ANACONDA BRASS

Servel Electric Units Ready for 1930 Market

ICE MEN UNDECIDED ABOUT SALES POLICY

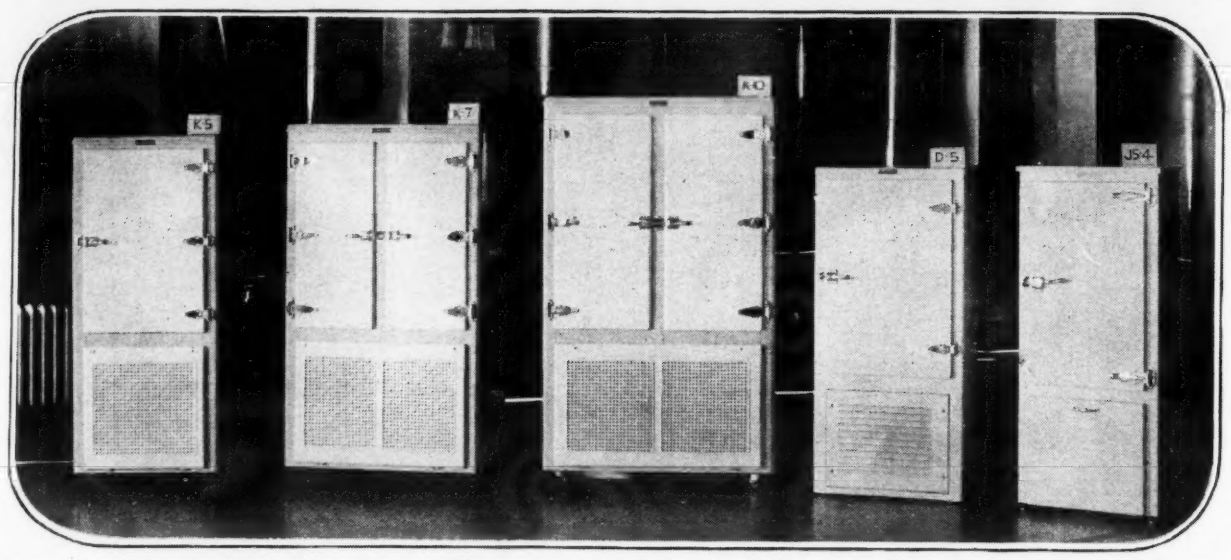
To Knock or Be Dignified?—That Is the Question

An editorial from Refrigerating World

THE question as to just how the ice industry should treat its competition, the chemical refrigerator, in its advertising is a much mooted one. It has received considerable attention and there is a divided opinion as to which of two methods is the better. There are proponents of the militant type of advertising who favor coming right out and mentioning the competition and telling the many things which chemical refrigerators fail to do and which are performed so well in an ice refrigerator. It is true that the chemical refrigerator has many undesirable features, or rather is deficient in a number of important things. Rather than be sedate and high-minded in its treatment of the competition, the champions of this type of advertising are desirous of "telling the world" about it on the basis that the public is ignorant of refrigeration matters and is unacquainted with certain unfavorable points about the competitors' product. They feel justified in endorsing such advertising because they say manufacturers of chemical refrigerators have shot their bolt and resorted to every conceivable effort, some not so ethical, to destroy the ice industry, have attacked the "slovenly ice man," and have ridiculed the industry as being old-fashioned and a passing one.

On the other hand, there are those who believe that every knock is a boost and for that reason, if for no other, the ice industry should refrain from using a militant type of advertising. They urge that the ice man stop talking about chemical refrigerators, in fact, stop thinking about the competition, and to concentrate all mental and physical effort in selling its product to the housewives of the country. They believe that to publicly air its quarrel with the competition would but make new customers for the chemical refrigerator. They are of the opinion that the industry should conduct its efforts in a dignified, big business manner, and that "mud slinging" would but indicate that the ice man had his back to the wall and was about through.

However, when certain proposed pieces of advertising copy with headlines reading, "The 'No More Ice' Tragedy Need Never Occur in Your Home," "They Are Safe Night and Day with Ice Refrigeration," "Who Wants Onions in Butter?" "Do you Taste Melons in Your Water?" "Don't Keep Foods in Stale Air," were flashed on the screen at the Boston convention, the membership seemed unanimous in expressing approval of them and signified that they would have such ads inserted in their local newspapers if stereos were supplied them.

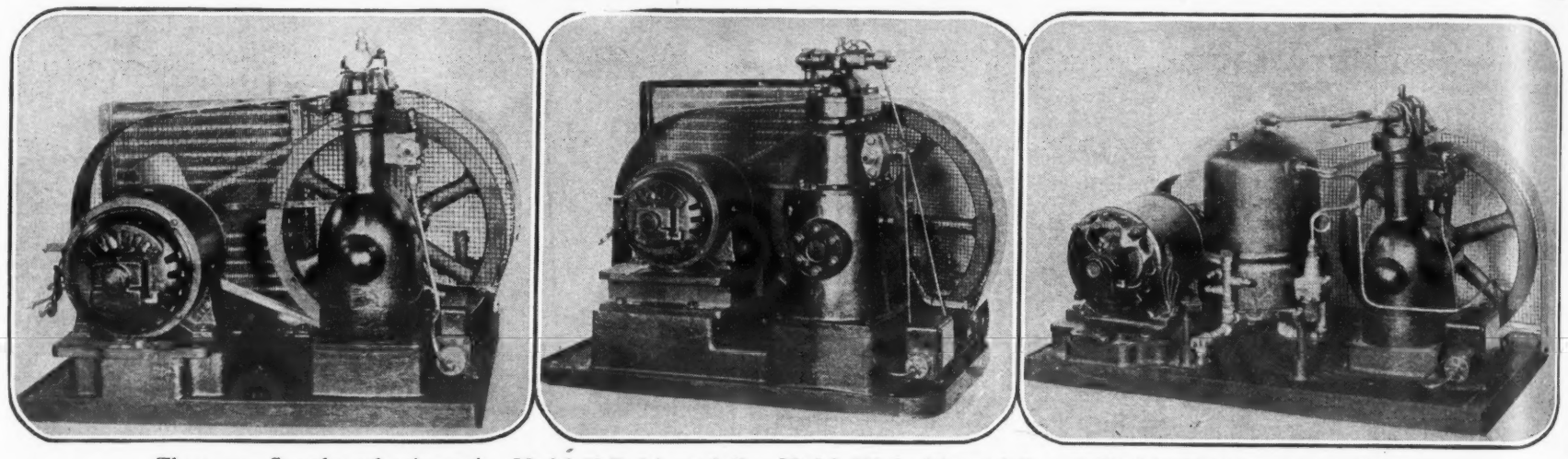


Servel domestic line, including the new Model JS-4, together with Models D-5, K-5, K-7 and K-10. The JS-4, a four cubic foot model, was introduced at the annual sales convention of Servel electric refrigeration representatives, November 21-23.

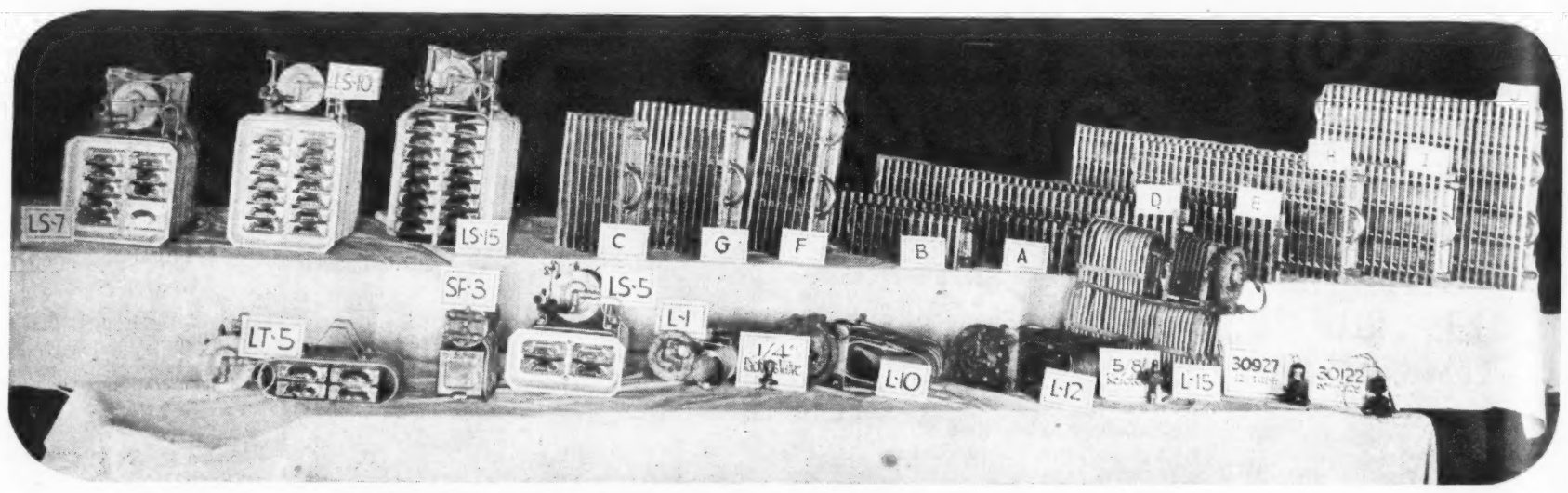
TOLEDO DEALER TO EQUIP SKYSCRAPER

Toledo, Ohio.—Contract for the installation of 33 individual water cooling units in the new Ohio Savings Bank & Trust Co. building was awarded to the Lake States General Electric Co., Richardson building. The new bank building, which will be Toledo's tallest skyscraper—25 stories—will be completed early in 1930.

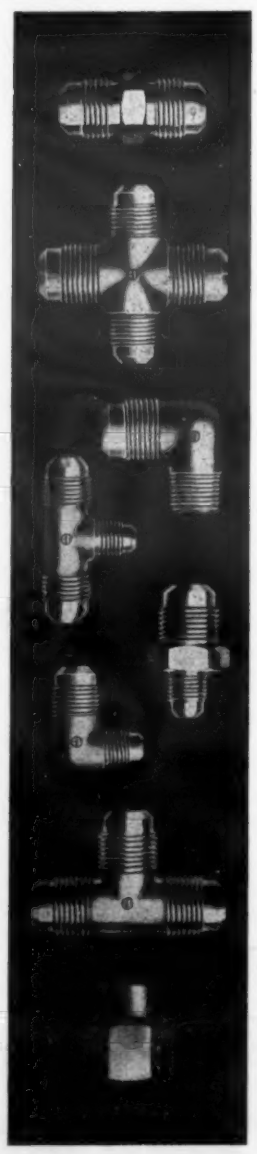
Lake States General Electric Co. also reports that the following firms have just been equipped with General Electric water cooling units: Toledo Furnace Co., Morrison R. Waite High School, Champion Spark Plug Co., and the new Toledo state hospital. In addition to the water cooling units, Toledo state hospital also installed a new General Electric biological refrigerator. This is the first electric refrigerator of its kind to be installed in any Toledo hospital.



Three new Servel condensing units. Model 50-B (air cooled); Model 100-A (air cooled) and Model 50-BW (water cooled).



Display of Servel chilling sections designed for domestic and commercial application.



FORGED BRASS FITTINGS

For Automatic Refrigeration

"Built Right -- to Stay Tight"

For more than 18 years this organization has specialized in the production of brass fittings for tube and pipe connections.

Billions of pieces; accurately machined, carefully inspected, and properly packed, have taught users of this type of product that Commonwealth is logically the preferred source of supply.

Pioneers in fittings for the automatic refrigeration industry, we have specialized on its requirements for pipe and tube fittings. We manufacture and stock a complete line.

Send for Catalog No. 36

COMMONWEALTH BRASS CORPORATION
Commonwealth and G. T. R. R.
DETROIT, MICH.

HAASE MADE GENERAL SALES MGR. OF SPARKLETS

New York, N. Y.—Frederick Haase, until recently acting in the capacity of assistant to A. Edwin Fein, president and general manager, Sparklets, Inc., New York City, has been appointed general sales manager.

Miss Eloise Budde, formerly assistant in the Home Service activities of Sparklets, has been placed in charge of the newly established Educational Department.

The company announces the addition of A. H. Leu, with offices in St. Louis and Kansas City; S. H. Stover, Pittsburgh, and Mrs. Ruth L. Steeves, Allentown, Pa., as divisional sales managers.

H. J. Gute & Co., San Francisco, Los Angeles and Denver, is now acting as exclusive sales representatives for the Pacific Coast, including all states originally covered by Phil B. Bekeart Co.

With capable, well-rounded sales organizations operating out of the most important trade centers, practically all territories in the United States, Canada, and Mexico have now been allotted by the company.

LIPMAN NAMES EASTERN OKLAHOMA DEALER

Tulsa, Okla.—Lipman Refrigerating Co., organized by George H. Bromley and Leo Holoman, refrigerating engineers, has been appointed a dealer of Lipman equipment for eastern Oklahoma. A well equipped display room and shop have been opened at 111 S. Elwood St. Day and night service on all makes of refrigerating equipment is given by the company.

FRIGIDAIRE SANTA CLAUS SPREADS CHRISTMAS SPIRIT

Shreveport, La.—The role of Santa Claus is being enacted by the Shreveport Frigidaire agency to Frigidaire purchasers, according to M. R. Harrelson, local sales manager.

Every purchaser of a Frigidaire during December receives either a silver desert set or an ice bowl and tongs, according to the choice of the purchaser. In telephone calls and personal solicitation of prospective patrons, as much of the spirit of Christmas is being inculcated in the sales campaign as possible.

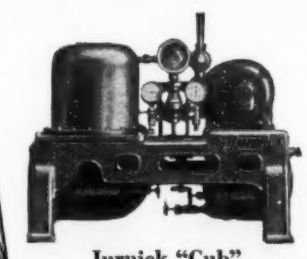
Juruick
ELECTRICAL REFRIGERATION

Only experienced engineers could build a refrigerating unit like the JURUICK . . . that produces a pure, dry cold, unvarying in intensity . . . that is automatically controlled to prevent the unnecessary use of power and water . . . that is silent, smooth, dependable . . . that is so compact, good looking and economical!

And only a JURUICK could be so easy to understand, to operate and to sell.

Solve your refrigerating problems with a JURUICK unit.

Write for literature



Juruick "Cub"

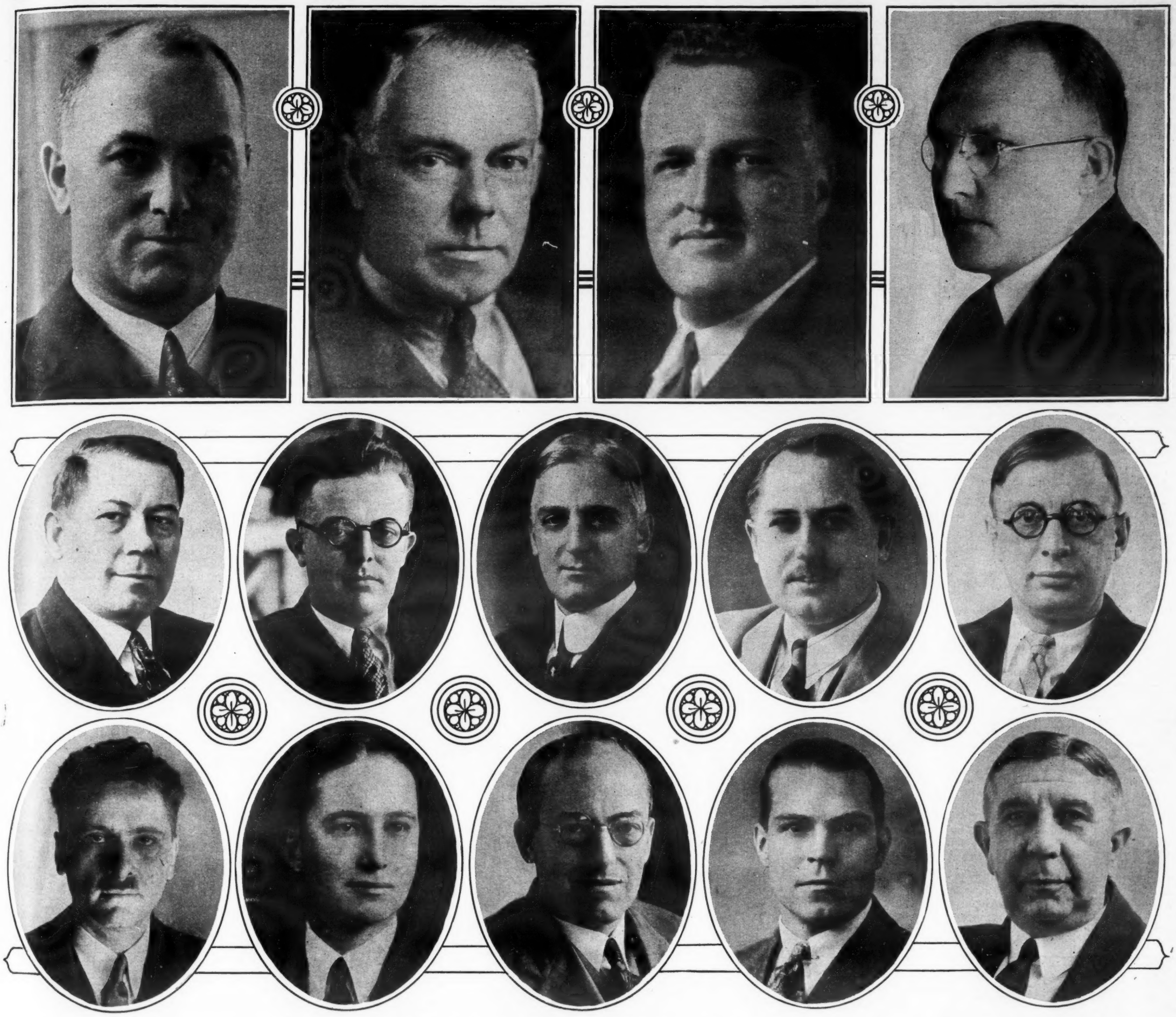
¼-ton to 40-ton refrigerating capacity

AMERICAN ENGINEERING COMPANY
2420 Aramingo Ave., Philadelphia

BRUNSWICK - KROESCHELL COMPANY offers the trade a complete line of anhydrous ammonia (NH_3) and carbon-dioxide (CO_2) refrigerating and ice making equipment and also more than thirty-two years of continuous and successful manufacturing, design and installation experience, covering the entire field of applied refrigeration . . . This wide experience has taught us not only *what* to do and *how* to do it, but also the importance of doing the thing *when* it should be done . . . To this end the direction and administration of the affairs of Brunswick-Kroeschell Company are, and always have been, in the hands of a group of men who are at the same time individual specialists in some one of the vital divisions of the business—engineering, manufacturing, research, accounting, finance, sales . . . The effectiveness of this type of direction and administration results in the unification of specialized knowledge, so necessary for wise, skilled and prompt action, to the mutual interests of our customers and ourselves.

BRUNSWICK-KROESCHELL COMPANY
Refrigerating & Ice Making Machinery
NEW BRUNSWICK, N.J. - CHICAGO, ILL.

Servel Officials Who Made Profit Record in 1929



(Top row—left to right)—H. W. Foulds, vice-president in charge of sales; Frank E. Smith, president; W. F. Thatcher, vice-president, and F. P. Nehrbas, vice-president in charge of engineering and production. (Middle row—left to right)—V. E. Vining, sales manager; W. D. Collins, chief engineer; E. T. Williams, consulting engineer; F. O. Cummings, comptroller, and A. R. Sager, purchasing agent. (Bottom row—left to right)—L. M. Lane, water cooler division; C. H. Conkey, commercial sales manager; A. T. Golding, advertising and sales promotion manager; C. E. Colyer, export manager, and A. H. Remsen, territorial development.

For Automatic Refrigeration Manufacturers

Whatever you require in copper, brass, bronze, or copper alloys, we are prepared to furnish on contract either parts or sub-assemblies ready for installation in your unit. Boilers, compression nuts, filters, floatballs, condensers, special nipples, bellows and thermostats, and a large variety of other standard parts.
Let us quote on your requirements.

Bridgeport Brass Co.
General Motors Building
Detroit, Mich.
General Offices and Plant
Bridgeport, Conn.
Offices in Principal Cities

"Bridgeport" Brass Goods Trade Mark

This is a National Message to the American Housewife

Good Housekeeping Institute

Recommends Proper arrangement of foods in your refrigerator, and KVP advises the use of Proper Papers for food wrapping and protection. There is a big difference—to get the most good out of your refrigerator are you using both KVP Refrigerator Papers?
There's Household Parchment for cooking and for wrapping all greasy, moist and wet foods—it's boil-proof—it wears—use it again and again. KVP Heavy Waxed Paper "Cutter Box" seals tight (one sheet will do)—keeps the moisture in or keeps the moisture out as desired. Remember, all foods should not be wrapped in Waxed Paper—for 100% results use the famous pair of KVP food wrapping and cooking papers.

Try your Grocer, Stationer, Hardware, Department Store and Naborhood Merchant first; if they cannot serve you, KVP will pay the parcel post.

Send $1.00 for the two big 50c rolls (West of Missouri and South Coast States, 60c per roll, both for $1.20 postpaid).

FREE When ordering, mention this ad for a Miracle Paper Dish Rag and interesting samples for you and your friends.

KVP STANDS FOR "THE WORLD'S MODEL PAPER MILL"
KALAMAZOO VEGETABLE PARCHMENT CO.
KALAMAZOO MICHIGAN U.S.A.
MANUFACTURING WORLD-WIDE FAMOUS FOOD PROTECTION PAPERS

IF you are in any way interested in Electric or Gas Refrigeration ...read the above over twice because it will mean much to you. .. this is our National message to the American Housewife in cooperation with your refrigerator sales campaigns. Write for samples and advertising ideas that sell your refrigerators to new customers and keep old customers interested.

SUPER AUTOMATIC OIL HEATOR

Satisfied Users

of electric refrigerators make ideal prospects for oil burners. Oil burners help to sell refrigerators, too.

Straighten out your sales curve with the SUPER Automatic Oil Heator.

THE SUPER OIL HEATOR CO.
PAWTUCKET, RHODE ISLAND

Frigidaire's New Commercial Cabinets

FRIGIDAIRE ADDS LARGE CABINETS, UP TO 110 CU. FT., TO COMMERCIAL LINE

(Concluded from Page 1. Column 2)

walk-in coolers, just as we manufacture refrigerating coils and compressors for household icebox installations," Mr. Biechler said. "We can provide refrigeration for the merchant who has a suitable box already, just the same as we do for the household whose icebox is too good to throw away. But in addition we now can furnish the merchant in need of new equipment a commercial box that has been designed and engineered for electric refrigeration exclusively and which can be covered by the standard factory guarantee."

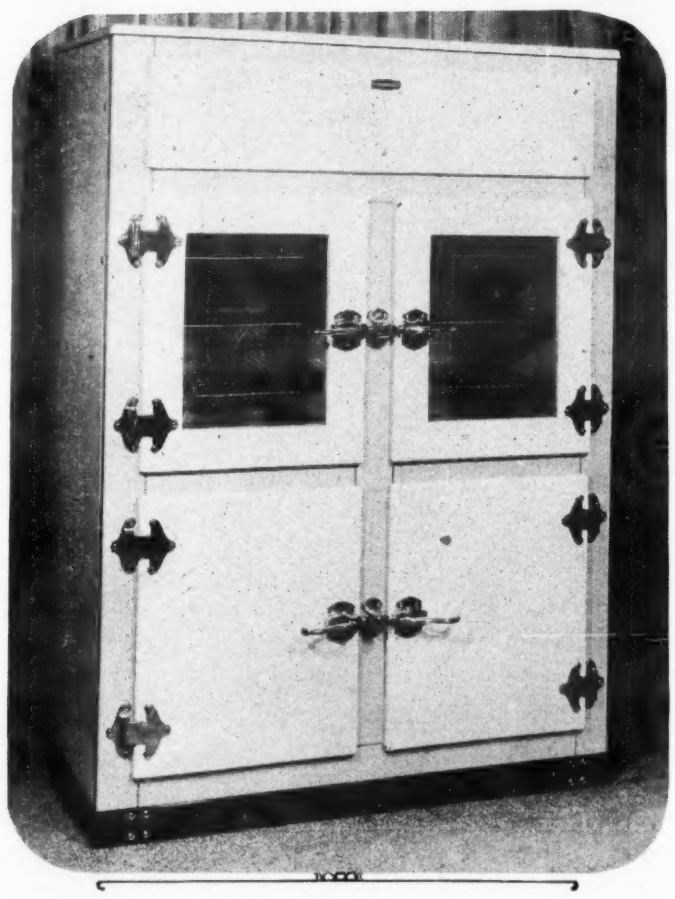
The smallest of the new boxes, having a capacity of 35 cubic feet, is on the order of a large household model and is adaptable to the needs of small groceries and restaurants, as well as butler pantries in large residences. Individual shelves, closely spaced, can be changed about to suit the individual user.

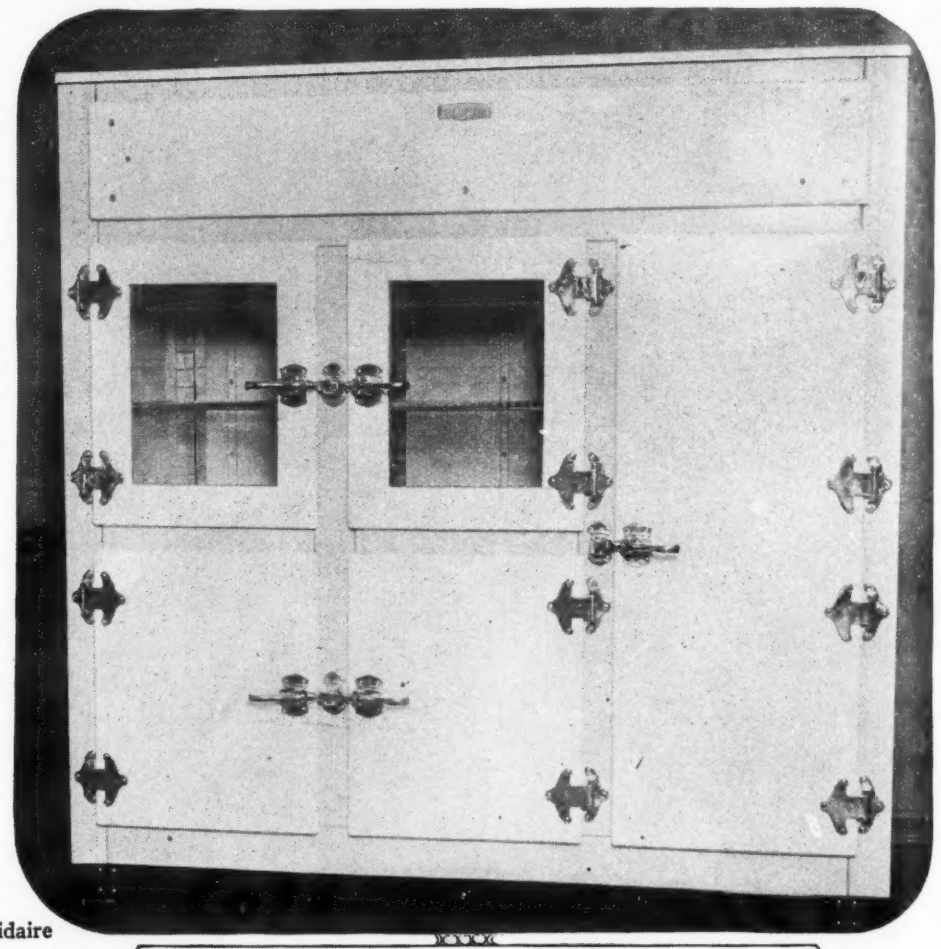
The second in the new line, a 60-cubic-foot box, has five service doors, one of them of full height, to permit the hanging of a full quarter of meat. The largest, a 110-cubic-foot refrigerator, also has five service doors, and is so constructed that it can be delivered knocked down and set up inside the customer's place of business.

Panels, sides, and other parts of the boxes which might become damaged in use, are removable and can be replaced with other factory built parts with a minimum of inconvenience and delay. The new cabinets are finished in porcelain inside and out, and are heavily insulated with cork. Glass doors are optional. Mechanical units can be placed in any out of the way place to save floor space in the vicinity of the box.

The new showroom of the Prior organization is considered the most complete exclusively commercial display headquarters of any refrigeration organization in the country. The ground floor of the building, on the northeast corner of Second and Jefferson streets, has been remodeled extensively to provide a suitable home for commercial Frigidaire products.

The interior of the new quarters was planned to enable visitors to see Frigidaire commercial equipment under actual operating conditions. Equipment for stores, soda fountains, restaurants, florist shops and every other type of commercial installation are on display. Latest in coils and compressors are mounted on attractive pedestals and placed in the windows. The walls are lined with ice cream cabinets, milk coolers, ice makers, water coolers, room coolers and portable models. Cutaway models, showing details of construction, also are featured in the display.





(Above)—Display of new Frigidaire commercial cabinets in the recently opened showroom of H. W. Prior Company, distributor, Dayton, Ohio. (Left)—Frigidaire's new thirty-five cubic ft. commercial refrigerator cabinet for small groceries and restaurants. (Right)—Another commercial model, which has a capacity of sixty-five cubic ft.

COPELAND DISTRIBUTOR CLOSES 32 UNIT ORDER

Tulsa, Okla.—Among recent installations made by Tulsa Copeland Refrigeration Co. are Heggem Apartments, Tenth and Boston Sts., and a water-cooling system in the new Skelly Oil Co. building at Fourth and Boulder Sts.

The apartment installation consists of thirty-two model ML2 Copeland refrigerators, each having five cubic feet storage capacity, with expansion coils and a model R and a model X Copeland Compressor. This is the largest Copeland installation in Tulsa. The water-cooling job consists of eight Copeland water coolers, connected to eight wall type fountains, and one model X

A. L. McCORMICK RECOVERS FROM ACCIDENT

Detroit, Mich.—A. L. McCormick, general manager of Electric Utility Corp., 3098 E. Grand Boulevard, distributor for General Electric refrigerators, who was confined to Henry Ford hospital Nov. 24, suffering with arthritis, returned to his work Friday, Dec. 12.

While on a hunting trip in Hudson Bay territory, Mr. McCormick fell, causing an inflammation in his left knee which later spread to his right arm.

"Maybe"—"Perhaps"—
"I think so"—"It ought to"—
all disappear from sales talks
when the refrigerator
is cork-insulated.

Then you can say:
"Corkboard insulation
keeps this cabinet
permanently moisture-proof.
It will never lose
its refrigerating power."

Novoid Corkboard Insulation
CORK IMPORT CORPORATION 345 W. 40TH ST. NEW YORK
"Permanent Protection for All Refrigeration"

The Filtrine Filter assures pure, clear water from your ELECTRIC Water Cooler
WRITE FOR DETAILS
FILTRINE MANUFACTURING COMPANY
49 LEXINGTON AVE. Brooklyn, N.Y.
Manufacturers of FILTERS & COOLERS of all sizes.

Faster, safer deliveries with WEBB Slingabout
REGISTERED U. S. PATENT OFFICE

Up the steps in jig-time goes the refrigerator delivered in a WEBB *Slingabout*. The strong webbing sling, reinforced with sole leather, offers convenient hand-holes on every side.

Safety to the refrigerator and to the walls and woodwork of your customer's house is assured by this thickly padded, flannel-lined canvas jacket.

Cleaner, quicker deliveries mean greater profit for you. WEBB *Slingabouts* are tailored to fit every mechanical refrigerator. Tell us what line you handle and we will gladly quote prices.

CHARLES J. WEBB & COMPANY
116 CHESTNUT ST. PHILADELPHIA, PA.

COPELAND SALES CONTEST CLOSES MIDNIGHT, JAN. 1

Mt. Clemens, Mich.—The zero hour for the national sales contest of distributors and dealers of Copeland Products, Inc., has been advanced from January 15 to midnight of January 1, factory sales officials announce. The contest opened March 1, with the country divided into eight groups, the winner in each to be given a silver cup. Announcement of the winners will be made in January.

Standings of the three leaders in each of the eight groups, Dec. 15, were:

Group 1—Copeland Refrigeration Co., New York, N. Y.; Copeland Refrigeration Co., Chicago, Ill.; Copeland Refrigeration Co., Detroit, Mich. *Group 2*—Copeland St. Louis Co., St. Louis, Mo.; Northeastern Radio Sales, Inc., Boston, Mass.; Copeland Refrigeration Co., Milwaukee, Wis.

Group 3—Harper-Magee, Inc., Seattle, Wash.; Fink Electric Co., Cincinnati, Ohio; Edward N. Eberling Co., Inc., New Orleans, La. *Group 4*—Charles Rice, Inc., Springfield, Mass.; Binder Electric Supply Co., Trenton, N. J.; Tulsa-Copeland Refrigeration Co., Tulsa, Okla.

Group 5—B. L. Johnson, Inc., Bethlehem, Pa.; Hagen Furniture Home, Hammond, Ind.; Copeland Refrigeration Co., Roanoke, Va. *Group 6*—W. P. Wookey, Pittsfield, Mass.; East End Cycle Co., Middletown, O.; Knight-Copeland Co., Inc., Colorado Springs, Colo.

Group 7—Good Housekeeping Shop, Inc., Kingston, Pa.; Feltus Engineering Co., Vicksburg, Miss.; Yowell-Drew Co., Orlando, Fla. *Group 8*—Clifford J. Benedict, Warwick, N. Y.; J. A. Portner, Wheaton, Ill.; Earl E. Holden, Jr., Hyannis, Mass.

OKLAHOMA UTILITY TO SELL GAS REFRIGERATOR

Tulsa, Okla.—Oklahoma Natural Gas Corp. has been granted the franchise for the distribution and sale of Electrolux refrigerators in fifty-three of the principal towns and cities of Oklahoma.

In preparation for an intensive campaign for the sale of Electrolux in Oklahoma, Alvin Thrasher, district sales manager of Electrolux Refrigeration Sales Corp., Evansville, Ind., was host to forty-five executives and salesmen of the Oklahoma Natural Gas Corp., at a dinner in the Hotel Tulsa, Dec. 9. Addresses were given by N. A. Newton, general sales manager in charge of all retail departments for the gas company; E. L. Dunagan, Tulsa sales manager for the gas company, and Mr. Thrasher. The minimum 1930 sales quota for Tulsa is five hundred refrigerators.

RETAIL MANAGER WRITES SERIES OF SALES TALKS

Toledo, Ohio—A. T. Emmertt, manager of retail sales of the refrigeration department of the General Electric Supply Corp., Toledo, is putting a plan into effect that produces results.

Mr. Emmertt has written a series of ten sales talks which have been distributed to retail salesmen. These talks are for the purpose of enabling the amateur, as well as the experienced salesmen, to explain to the prospective buyer why electric refrigeration is superior to other forms of refrigeration.

The talks were written under the following captions: What Kind of a First Impression Did You Make? Did You Quickly Establish a Point of Contract? Were You Able to Secure His Undivided Attention? Did You Give Him a Chance to Sell Himself? Was Your Knowledge of What You Were Selling Adequate? Did You Drive Home Each Point as You Went Along? Did You Make Him Want What You Had to Sell? Did You Introduce Sufficient Documentary Evidence? Did You Use Good Tactics at the Close? Did You Leave the Way Open for a "Come Back?"

SALES MANAGER

R. H. Graham

Mt. Clemens, Mich.—R. H. Graham has been appointed sales manager of the recently established Detroit factory branch of Copeland Products, Inc.

Mr. Graham comes to the Copeland distributing organization after 14 years' association with Frigidaire at Baltimore, where he was general manager of J. J. Pocock, Inc., distributors; regional manager for the factory for two years, and manager of the Frigidaire factory branch at Baltimore.

FOUR TYPES OF BUYERS IN THE BUILDING TRADE

THE New York Structural Steel Board of Trade recently classified buyers and builders concisely, and possibly accurately, in one of its bulletins entitled, "Check Up!—Where Do You Fit?" We believe it is worth passing on.

"There are four principal types of buyers in the building trade.

"A. Takes his figures, decides which bidder he would prefer to have do his job, and then awards the work, paying the selected concern their asking price, even though it may not be the low bid, and then he may even tell them that he's giving a preference.

"B. Takes his figures, makes a selection, and then tries in every decent way to get the favored bidder to bring his price down near the low figure submitted, before he finally closes.

"C. Takes, figures, selects the lowest received, and then starts in systematically with all the bidders to have them cut below the low, and meeting with some success, he will start all over again, using the new low as a lever to pry them down still farther.

"D. Takes his figures, fakes up bids which are frequently written in his own office, tells each bidder he's the highest of the lot, promises, threatens, lies, and pulls about every known stunt, and finally hooks someone who is badly in need of work."

Now A, of course, is the high grade buyer who has his preferences and is, if necessary, willing to pay for them. B is high grade but likes to make a little effort to get a concession with his preference. C and D are so well known to everyone in the building business that it's surprising they can spring their trap on intelligent business men.

"AND THEN AGAIN! There are three types of sub-contractors or sellers:

"A. Believes that his experience, ability and the service he can render have a decided value, and insists on being paid for them *at all times.*

"B. Believes that his experience, ability and the service he can render have a decided value, and tries to cash these in, but if *needs are great* will forego some of them.

"C. Believes that the price offered by the buyer is the best that you can get and that business so offered must be accepted, if you are to get business at all."—*Building Age.*

KELVINATOR SHIPMENTS SHOW GAIN IN NOVEMBER

Detroit, Mich.—Kelvinator shipments for the month of November show an increase of 133 per cent over November, 1928, according to H. W. Burritt, vice-president. The announcement, early in October, of a new line of domestic refrigerators, with many new features, is considered an important factor in the demand. Chief among these new features are the ice-o-thermic tubes, for automatic faster freezing, and provision for maintenance of four distinct temperatures in the same cabinet.

RURAL USE OF ELECTRIC APPLIANCES URGED

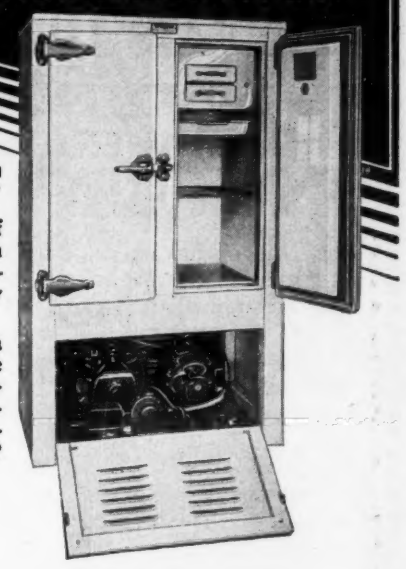
Shreveport, La.—Increasing the use of electrical appliances in rural sections of Louisiana was the object of a conference held in Baton Rouge Dec. 4, in which electrical dealers and agricultural leaders participated.

A permanent organization will be sought to stimulate the use of electrical appliances on farms. The committee consists of C. T. Dowell, Dean of the College of Agriculture of Louisiana State University, and Dr. H. M. Bain, of New Orleans, secretary.

MORASH TO ORGANIZE KELVINATOR JAPAN CO.

Detroit, Mich.—B. H. Morash, formerly manager of Kelvinator, Ltd., in London, England, sails on the S. S. *President Taft*, December 20, for Japan, where he will organize a Kelvinator of Japan company. His headquarters will be either at Yokohama or Tokio, and he expects to remain in Japan, where he spent four years before going to England, until May, 1930.

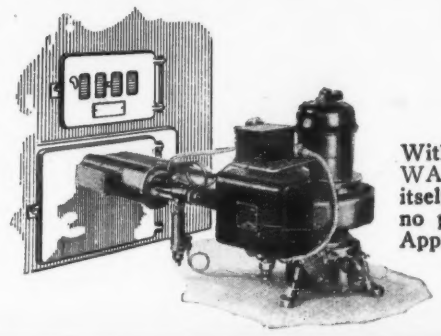
Wayne
ELECTRIC REFRIGERATOR



Double Your
Sales--and Profits!

To the new, complete, colorful line of Wayne Electric Refrigerators has been added the separate refrigerating units—(Two sizes)—that can be installed in any refrigerator!

This means that every home is now a REAL PROSPECT! That wherever the housewife prefers to retain her own refrigerator—the Wayne electric refrigerating unit can be easily and quickly installed! Want to know more about it? Just drop us a line!



Oil Burners, Too!

With only one moving shaft, the New WAYNE OIL BURNER is in a class by itself! No carburetor, cams, floats, and no part of burner in or under fire box. Approved by National Fire Underwriters! Quick and Easy to install! Big profits for responsible dealers!

WAYNE HOME EQUIPMENT CO.
Fort Wayne, Indiana

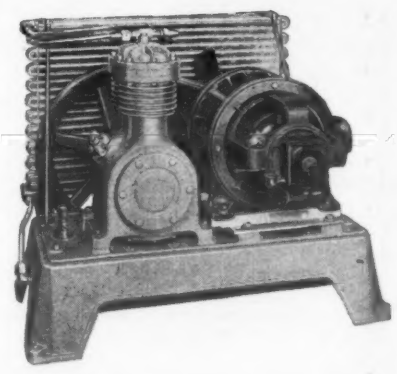
KULAIR Electrical Refrigerating Products
Simplicity, quality, efficiency and capacity unequaled. A size for every use.

WITH THESE ARE AFFORDED
POLICIES *and* PRICES *for* COMMON SENSE MERCHANDISING
Resulting in Larger Business and Larger Profits to Every One of Our Connections

KULAIR Compressors all made with the famous Kulair Floating Reed Discharge Valve. High Lift, Positive Seating, Quiet Operation, Self Aligning and Simple Design. KULAIR Shaft Seal admits Complete Removal or Renewal without dismantling compressor. No grinding to shaft or fitting.

FOURTEEN YEARS OF COMPRESSOR BUILDING TELLS US HOW

KULAIR
Sulphur Dioxide and Methyl Chloride
Condensing Units or High Sides
Air and Water Cooled
are
Suitable to Every Requirement—
Commercial, Multiple and Domestic



IT WILL PAY
Distributors and Dealers to keep posted on the Developments of our Engineers in the Refrigeration Field.

KULAIR FREEZING UNITS FOR ALL MAKES OF FIRST CLASS HOUSEHOLD CABINETS
A NEW DEPARTURE IN ALL ESTABLISHED ENGINEERING

They are what everybody said would some day exist.
They remained for Kulair Engineers to design, develop, perfect and make available to a hungry market.

A SIMPLE, EFFICIENT, QUANTITY ICE-PRODUCING UNIT, HAVING LARGE HEAT ABSORBING SURFACE, SMALL VERTICAL HEAD ROOM AND PRODUCING DESIRED REFRIGERATION RESULTS.

For domestic, apartment, self-contained cabinets, and multiple unit installation.

KULAIR FREEZING UNITS
OPERATE WITH ANY CONDENSING UNIT

Employing Sulphur Dioxide, Methyl Chloride, Ethyl Chloride, Butane, Isobutane or other refrigerants.

Kulair Refrigerating and Business Engineers are Leaders in the Entire Industry. Policies, Products and Prices have proven to every one of our connections that the Distributor, Dealer, Assembler and Customer makes money by the advertising and merchandising advantages offered by our plans.

Write For Full Information

KULAIR CORPORATION PHILADELPHIA, PA.

Fulco
REFRIGERATOR COVERS

"FULCO" covers are used by those dealers who realize the importance of making deliveries in perfect condition—without scratches or broken enamel. For they know that complaints mean dissatisfied customers and loss of business.

"FULCO" covers are a real service feature that helps sales and holds trade.

Substantially constructed, heavily padded, box-shaped, providing perfect protection.

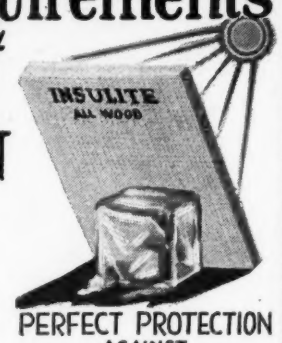
Give us the dimensions of your refrigerators, and let us quote special prices on your individual needs. Write our nearest house.

Fulton Bag & Cotton Mills
Manufacturers Since 1870
ATLANTA · NEW ORLEANS · DALLAS · ST. LOUIS
MINNEAPOLIS · BROOKLYN · KAN. CITY, KAN

INSULITE

the Wood-Fiber Insulating Board

Combines All *the* Requirements *for Efficient* REFRIGERATOR INSULATION



PERFECT PROTECTION AGAINST HEAT OR COLD

INSULITE has high insulating, efficiency — continuous durability, being a material not subject to deterioration—it has strength and sturdiness, combined with lightness—it is non-odorous—cut to size, it is easily and economically handled—a labor and time saving material.

Insulite has been tested and proved—the General Electric is using it in their new all steel refrigerator—over 44,000 railroad refrigerator cars are now insulated with insulite. Refrigerator cars must be efficiently insulated and with a material that will stand up year after year in this trying service—no replacements of Insulite have ever been required.

Insulite is an all wood-fiber board of extremely light weight but great tensile strength. Insulite is structurally strong and with its use the ordinary wood framing can be reduced to a minimum.

Insulite will not deteriorate, rot or disintegrate under the most severe conditions. Insulite is odorless and will not absorb odors, insuring a permanently sweet refrigerator.

And remember—Insulite is furnished, cut to size, ready for application—reducing labor costs and speeding up production.

If you are not already using Insulite investigate its merits. May we send you a sample and complete data? Write—

THE INSULITE COMPANY

1200 Builders Exchange, Minneapolis, Minnesota — (*A Backus-Brooks Industry*) Dept. 30L — 737 Conway Building, Chicago, Illinois

STEEL MEN ATTEND ENAMELERS SCHOOL

Cleveland, Ohio.—The annual Enamelers' Training Course, sponsored by Ferro Enameling Co., is now in progress. The course is under the direction of J. E. Hansen, research engineer of the Ferro Company. He is assisted by G. H. McIntyre, chief chemist, and other members of Ferro Enameling Co.

The students who are attending the classes are as follows:

Hugh Grant, American Rolling Mill Co., Ashland, Ky.

Russell Thomas, American Rolling Mill Co., Middletown, O.

John Andrews and Sam Eldridge, Newport Rolling Mill Co., Newport, Ky.

R. E. Stark, Crown Chemical Co., Pittsburgh, Pa.

Dr. H. E. Romine and Budyard Porter, American Sheet & Tin Plate Co., Pittsburgh, Pa.

P. J. Cooper, Canadian General Elec. Co., Toronto, Ont.

F. H. Kohne, New Brighton, Pa.

Graham Bell, General Steel Wares, Ltd., Toronto, Ont.

E. R. Johnson, Central Alloy Steel Corp., Canton, O.

B. N. Salzman, Toledo Porc. Enamel Prod. Co., Toledo, O.

Charles Apperson, Elec. Belle Range Company, Huntsville, Ala.

Wm. E. Powell, Mr. Schermerhorn, Mr. Reehl, Mr. Schneider, Wm. Irby and Ralph Coombs, General Electric Co., Schenectady, N. Y.

Mr. Rose, Century Stove Co., Johnstown, Pa.

Grayson E. Via, Loth Stove Co., Waynesboro, Va.

Darwin Buckwalter, Buckwalter Stove Co., Royersford, Pa.

Geo. Stevenson, Buffalo Porcelain Enamel, Buffalo, N. Y.

L. M. McClatchie, Jr., Beach Foundry, Ltd., Ottawa, Ont.

PREDICTS REFRIGERATORS WILL EXCEED PRESENT NUMBER OF AUTOS

"That the day is rapidly coming when there will be an automobile for every family in the land, when domestic refrigerators will outnumber today's automobiles, when radio and television will enrich many millions of homes," is the prediction of B. C. Forbes, writing in the Sunday, Nov. 17, issue of *The Detroit Times*.

Mr. Forbes says that Detroit, in half a century has become the wonder of the modern world, and yet is only in its infancy. "Brains make cities and nations great. Detroit and tributary territory contains a larger number of $250,000-a-year executives than any city in the world, with the sole exception of New York."

Mr. Forbes continues: "Your Fishers and Fords and Chryslers and Knudsens and Grants and Grahams and Macauleys and Motts and Webbers and Ketterings are priceless assets, capable of upbuilding mightily any city fortunate enough to attract them."

TRAINING FOR COMMERCIAL SALES INSTRUCTORS

Detroit, Mich.—During the week of December 9, Kelvinator Corp. held a school of review and rehearsal for sales instructors in commercial selling, under the direction of J. B. Johnson and T. S. Edwards, of the Commercial Sales department.

During January, February and March Kelvinator field representatives will hold two-day commercial sales schools in various key cities throughout the United States. The courses are intended to acquaint new salesmen and dealers with the Kelvinator line, its application and how to sell it. The following attended the school: J. B. Johnson, Wm. C. Stephenson, R. D. Lombard, E. L. Turner, J. B. Loomis, S. A. Kelsey, T. S. Edwards, J. F. Crossin, R. I. Eshman, Earl Manier and Richard Owen.

THORNBURG MANAGER OF FRIGIDAIRE BRANCH IN EVANSVILLE

Evansville, Ind.—J. G. Thornburgh, Indianapolis, has been appointed manager of the local Frigidaire Sales branch, succeeding G. F. Mox, who is taking up special Frigidaire sales work.

Mr. Thornburgh has been connected with the Frigidaire Sales division for seven years. Under his management the local branch becomes a retail subfactory, handling consumer sales in this county exclusively. The local branch is controlled by the Indianapolis factory sales branch.

HOME SERVICE LADY VISITS KELVINATOR PLANT

Detroit, Mich.—Mrs. Bernese Loyal, in charge of home service work for Broad River Power Co., Kelvinator distributors at Columbia, S. C., was a recent visitor to the factory.

CONVENTION DATES

American Engineering Council, Annual Meeting, Jan. 9-11, Washington, D. C.; L. W. Wallace, 26 Jackson Place, Washington, D. C.

American Institute of Consulting Engineers, Inc., Annual Meeting, Jan. 13, New York City; P. W. Henry, 111 Broadway, New York City.

American Institute of Electrical Engineers, Winter Convention, Jan. 27-31, New York, N. Y.; F. L. Hutchinson, 33 W. 39th St., New York City.

American Institute of Mining and Metallurgical Engineers, Annual Meeting, Feb. 17-20, New York, N. Y.; H. Foster Bain, 29 W. 39th St., New York City.

American Oil Burner Association, Annual Meeting, Apr. 7-12, Chicago, Ill.; Harry Tapp, 342 Madison Ave., New York City.

American Railway Association, Engineering Section Meeting, Mar. 11-13, Chicago, Ill.; E. H. Fritch, 431 S. Dearborn St., Chicago, Ill.

American Railway Association, Signal Section, Annual Meeting, Mar. 10-11, Chicago, Ill.; H. S. Balliet, Secy., 30 Vesey St., New York City.

American Society of Heating & Ventilating Engineers, Annual Meeting, Jan. 28-31, Philadelphia, Pa.; A. B. Hutchinson, 29 W. 39th St., New York City.

Artistic Lighting Equipment Association, 1930 Convention, Feb. 9-15, Washington, D. C.; C. L. Benjamin, Eng. Dir., 420 Graybar Bldg., New York City.

Association of Municipal Electrical Utilities of Ontario, Annual Meeting, Jan. 29-30, Toronto, Ont., Canada; S. R. A. Clement, 190 University Ave., Toronto, Ont., Canada.

National Electrical Credit Association, New England Division, Jan. 21, Boston, Mass.; F. P. Vose, 1008 Marquette Bldg., Chicago, Ill.

Engineering Institute of Canada, Annual Meeting, Feb. 12-14, Ottawa, Ont., Canada; R. J. Durley, 176 Mansfield St., Montreal, Que.

Florida Engineering Society, Annual Meeting, Apr. 17-19, Ocala, Fla.; F. R. Benton, Gainesville, Fla.

Electrical Leagues, Mid-Winter Conference of Secy.-Mgrs., Jan. 13-16, New York, N. Y., The Society for Electrical Development, Room 600-420 Lexington Ave., New York, N. Y.

National Electric Light Association, North Central Division, Commercial Section, Jan. 20-21, St. Paul, Minn. Engineering Section, Feb. 24-25, Minneapolis, Minn.; J. W. Lapham, 803 Plymouth Bldg., Minneapolis, Minn. Southeastern Division, Annual Meeting, Apr. 16-18, Augusta, Ga.; C. M. Kilian, 207 Bona Allen Bldg., Atlanta, Ga.

National Electrical Wholesalers Association, Pacific Division, Jan. 31-Feb. 1, Del Monte, Calif.; E. Donald Tolles, 165 Broadway, New York City.

Oklahoma Utilities Association, Annual Meeting, Tulsa, Okla. **(Exhibits)**, Mar. 11-13; E. F. McKay, 1020 Petroleum Bldg., Oklahoma City, Okla.

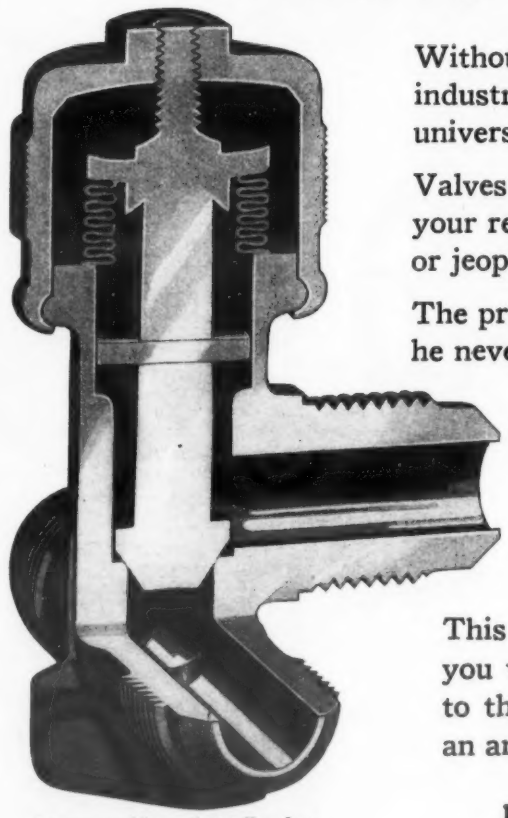
Pacific Coast Electrical Association, Commercial Section, Jan. 9-10, San Francisco, Calif. Pacific Coast Electrical Association, Engineering Section, Jan. 16-17, Los Angeles, Calif.; S. H. Taylor, 447 Sutter St., San Francisco, Calif.

SHOWS

Automobile Show, Grand Central Palace, New York, N. Y., Jan. 4-11.

Home Complete Exposition, Indianapolis, Ind. **(Exhibits)**, Apr. 5-12.

Mueller Forgings Are Vital to the Business Building of Refrigeration



3-way packless shut-off valve. Sectional view of Mueller ½" Catalog No. A-11053.

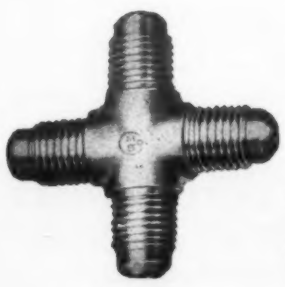
Without brass forgings the mechanical refrigerating industry could not have progressed to the position of universal use it enjoys today.

Valves and fittings to a great extent determine whether your refrigerator is safe or unsafe—they either protect or jeopardize the very lives of your ultimate customers.

The prospective purchaser of today is asking questions he never asked before. The technical side of the product formerly left to engineers is being closely scrutinized. Consumer education has brought about this changed condition.

Nothing less than the complete insurance which MUELLER forged brass fittings give should be offered to your customer. This one feature added to your product will provide you with a most potent sales argument—an answer to the question every prospect has in his mind and an answer that he cannot challenge.

Mueller Brass Co. Valves and Fittings are approved by the Underwriters' Laboratories of Chicago.



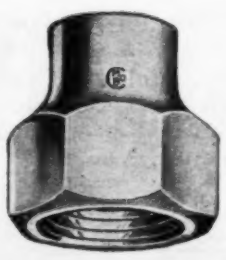
We manufacture a complete line of valves and fittings and can supply your every requirement.

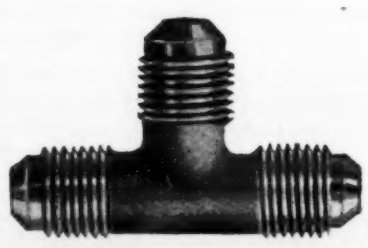
Send us samples or blue prints for quotations.

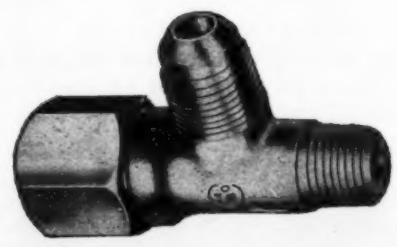
Mueller Brass Co.

PORT HURON, MICHIGAN

THREE GENERATIONS OF BRASS MAKING







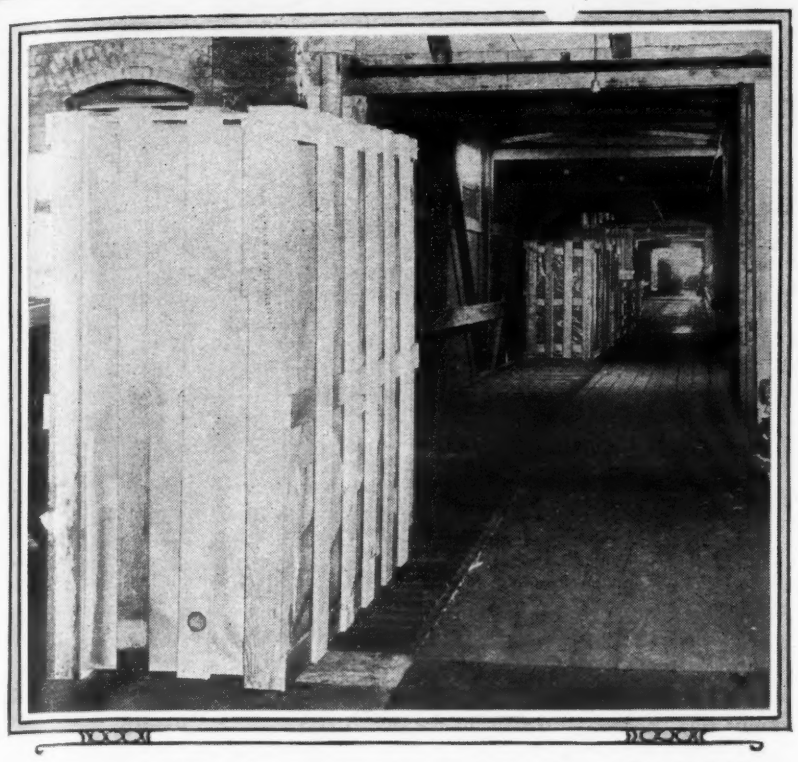
PROFITABLE SALES

Selling Rhinelander "Airtite" cabinets equipped with standard mechanical units invariably means increased profits per sale. These beautiful refrigerators in white and colors make an instant appeal to the most discriminating prospect. May we send you catalog No. 70 and complete price information?

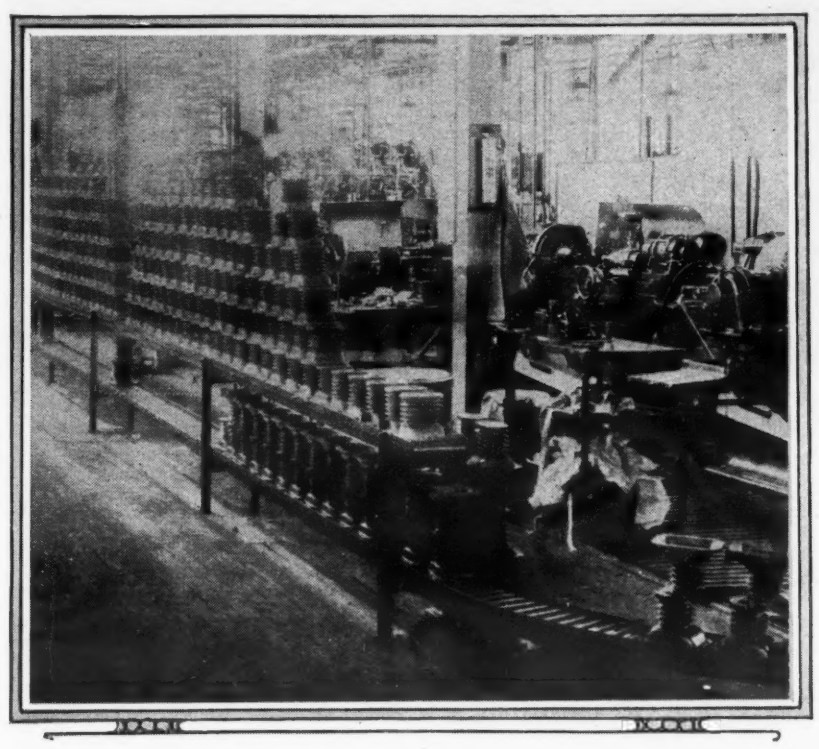
RHINELANDER REFRIGERATOR CO.

RHINELANDER, WISCONSIN

Conveyors Speed Up Production of Refrigerators



Standard heavy duty roller conveyor in the Seegar plant at St. Paul, Minn., used for carrying crated refrigerators to freight cars.



Conveyor installed in the Delco plant at Dayton by Standard Conveyor Co., North St. Paul, Minn., for handling Frigidaire compressor castings.

MANUFACTURERS OF TOOLS FOR PRODUCTION, TESTING, INSTALLATION & SERVICE

MATERIAL HANDLING

Atlas Plywood Corp.,
Park Square Bldg., New York, N. Y.
Trade name.....Atlas
Refrigerator shipping crates.

Brown Hoisting Machinery Co.,
4403 St. Clair Ave., Cleveland, Ohio.
Hoists.

Cleveland Container Co.,
10630 Berea Road, Cleveland, Ohio.
Paper tubes and cans for protecting small parts in transit.

Cleveland Electric Tramrail, Division of Cleveland crane & Engineering Co., Wickliffe, Ohio.
Electric cranes, hoists, conveyors and tiering machines.

Continental Can Co.,
100 E. 42nd St., New York, N. Y.
Oil cans for shipping service oil.

Detroit Hoist & Machine Co.,
8201 Marrow, Detroit, Mich.
Electric hoists.

Fulton Bag & Cotton Mills,
Georgia R. R. & South Blvd., Atlanta, Ga.
Trade name.....Fulco
Refrigerator covers.

Jeffery Mfg Co., 959 N. 4th St., Columbus, Ohio
Conveyors, handling equipment.

Lansing Sales Co.,
24 Narvard St., Boston, Mass.
Padded moving covers and lifting straps.

Link Belt Co., Chicago, Ill.
Conveyors, escalators.

Lowerator Mfg. Co.,
112 Pearl St., Brooklyn, N. Y.
Material handling equipment.

New Haven Quilt & Pad Co.,
82 Franklin St., New Haven, Conn.
Refrigerator hood covers with web harness.

Olson & Co., Samuel,
2416 Bloomingdale Ave., Chicago, Ill.
Material conveyors.

Palmer-Bee Co.,
Westminster and G. T. R. R., Detroit, Mich.
Conveyors, escalators.

Reading Chain & Block Corp.,
2100 Adams, Reading, Pa.
Chain and electric hoists, traveling cranes.

Shepard Elec. Crane & Hoist Co.,
388 Schuyler Ave., Montour Falls, New York.
Electrical hoisting equipment.

Signode Steel Strapping Co.,
2600 N. Western Ave., Chicago, Ill.
Trade name.....Signode
Steel strapping, seals and tools for applying the same on shipping containers.

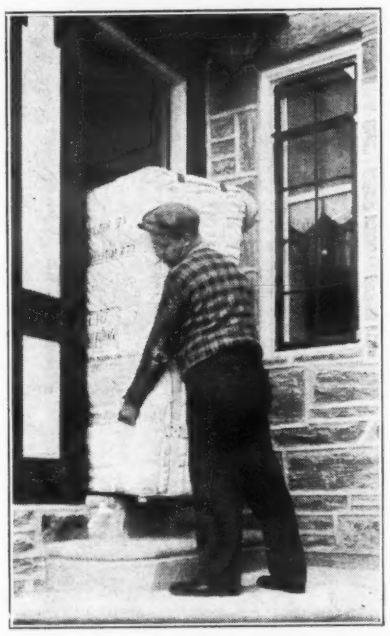
Standard Conveyor Co.,
315 Second Ave., N. W. North St. Paul, Minn.
Conveyors, tiering machines, elevators and spiral chutes.

Webb & Co., Charles J.,
116 Chestnut St., Philadelphia, Pa.
Trade name.....Webb Slingabout
Padded covers and slings for electric refrigerators, tarpaulins, waterproofed canvas and crating felt.

Webster Mfg. Co.,
1856 Koster Ave., Chicago, Ill.
Conveyors.

Weber & Pitcher,
Fullerton & P. M. R. R., Detroit, Mich.
Warehouse trucks, wheels.

No Scratches



REFRIGERATOR, protected by a Slingabout canvas jacket, being moved through a narrow door. The lining of the jacket, which is flannel, prevents marring or scratching of the cabinet finish during delivery. Three-ply canvas belting, copper riveted, placed around the outside of the canvas, keeps the enclosed refrigerator from slipping and offers convenient hand-holds. Slingabout is manufactured by Charles J. Webb Co., Philadelphia, Pa.

INSTALLATION AND SERVICE

Buhl Stamping Co.,
2730 Scotten Ave., Detroit, Mich.
Flaring tools, punches.

Imperial Brass Co.,
1200 W. Harrison St., Chicago, Ill.
Tube cutters, flaring tools, welding apparatus.

Kant Slip Plier & Tool Co.
6036 Wentworth Ave., Chicago, Ill.
Alloy steel pliers.

Motor Tool Specialty Co.,
4849 John R. St., Detroit, Mich.
Wheel pullers, socket wrenches, valve lifters, vacuum grip pliers, punches, end wrenches.

Oxweld Acetylene Co., Division of Union Carbide & Carbon Corp.,
30 E. 42nd St., New York, N. Y.
Acetylene welding.

Pulmosan Safety Equipment Corp.,
176 Johnson St., Brooklyn, N. Y.
Trade name.....Pulmosan
Gas masks, sulphur dioxide respirators, goggles and asbestos clothing.

Smillie & Co., C. M.,
520 E. Larned St., Detroit, Mich.
Flaring tools, tube cutters and reseating tools.

Snap-On Wrench Co.,
4450 John R. St., Detroit, Mich.
Screw drivers, pliers, punches, chisels, wrenches and small tools.

Swift Electric Welding Co., Detroit, Mich.
Spot, seam, electric welding.

J. H. Williams & Co., Buffalo, N. Y.
Wrenches, cutters, bit holders, forgings.

York Ice Machinery Corp., York, Pa.
Gas masks.

TESTING

Bristol Co., Waterbury, Conn.
Testing instruments.

Brown Instrument Co., Philadelphia, Pa.
Testing instruments.

Cramp Mfg. Co., 2850 Fulton St., Chicago, Ill.
Indicating micrometers.

Electrical Testing Laboratories,
80th & East End Ave., New York, N. Y.
Test reports and data on overall performance or on electrical, mechanical, or chemical equipment.

Foxboro Co., Inc., Foxboro, Mass.
Recording equipment.

Jos. W. Hays Corp., Michigan City, Ind.
Testing instruments.

W. G. Loveday Co., Salem, Mass.
Metallic thermometers.

Moto Meter Co., Inc.,
Wilbur Ave., Long Island City, N. Y.
Temperature recording instruments.

Philadelphia Thermometer Co.,
915 Filbert St., Philadelphia, Pa.
Testing instruments.

Scientific Instrument Co.,
535 W. Larned, Detroit, Mich.
Gauges, recording instruments.

Standard Thermometer, Inc.,
65 Shirley St., Boston, Mass.
Recording instruments.

C. J. Tagliabue Mfg. Co.,
18 Thirty-third St., Brooklyn, N. Y.
Recording instruments.

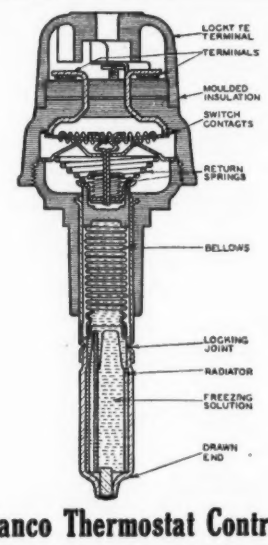
Taylor Instrument Co., Rochester, N. Y.
Recording and registering instruments.

Weston Electrical Instrument Co.,
Newark, N. J.
Recording instruments.

(Concluded on Page 20, Column 2)

NOTICE

See page 20 for continuation of directory of manufacturers of tools for production, testing, installation and service. Manufacturers listed in this directory are invited to send in corrections or additional information regarding their products for publication in the comprehensive listing of manufacturers of refrigeration systems, cabinets, parts, accessories, and related merchandise in the Annual Catalogue and Directory Number of the News, January 1, 1930.

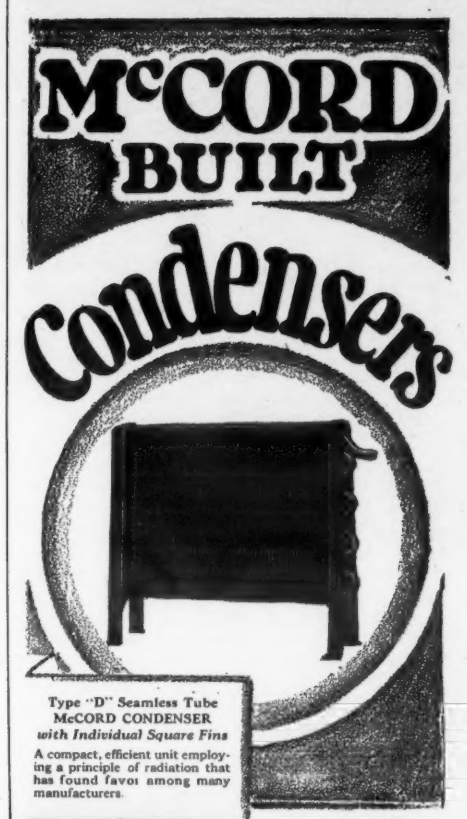


Ranco Thermostat Controls

for Household Refrigerators, Ice Cream Cabinets, Water Coolers, etc., maintain an even temperature. Once installed, no further adjustments necessary. Now standard equipment with many manufacturers. *Write for Bulletin 603.*

THE AUTOMATIC RECLOSING CIRCUIT BREAKER COMPANY
COLUMBUS, OHIO, U. S. A.

McCORD BUILT Condensers



Type "D" Seamless Tube McCORD CONDENSER *with Individual Square Fins*
A compact, efficient unit employing a principle of radiation that has found favor among many manufacturers.

Type "B" Spiral Fin *Continuous coil* McCORD CONDENSER
Another popular condenser made up of seamless copper tubing with continuous corrugated spiral fin giving great radiative capacity.

Type "C" Spiral Fin Coil McCORD CONDENSER *with Seamless Headers*
McCord condensers are made in many sizes and shapes to meet the requirements of a wide variety of installations.

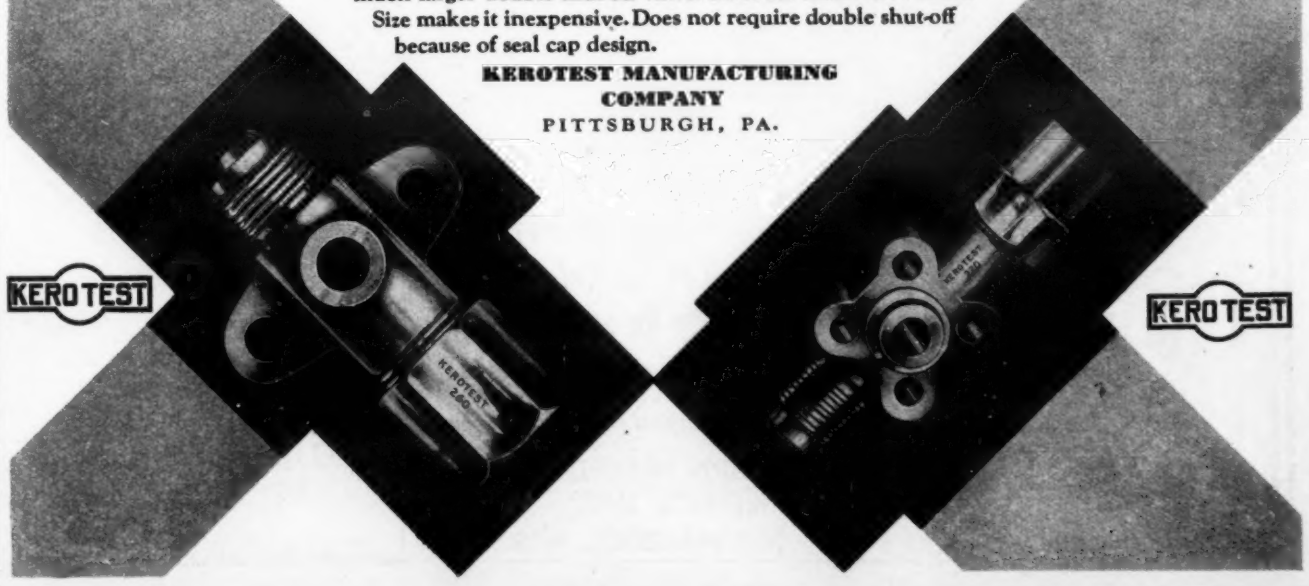
McCORD RADIATOR & MFG. CO.
DETROIT MICH.

Sulphur Dioxide!
For Direct Charging!
Every Container Analyzed
"Pure" Bone Dry . . . Cylinders 2 to 150 lbs
ANSUL Chemical Co
MARINETTE, WIS
Also . . . .
Ton Drums-Tank Cars

KEROTEST
FORGED BRASS
EVAPORATOR VALVES
• for expansion coils, boilers and brine tanks

Illustrations show two very popular Kerotest Line and Angle Valves. The Line Valve shown is small in size but equally efficient as the much larger double shut-off valve. Ideal for small tube work. Size makes it inexpensive. Does not require double shut-off because of seal cap design.

KEROTEST MANUFACTURING COMPANY
PITTSBURGH, PA.



DEVICE CUTS CIRCULAR THREADS EVEN IF THE PIPE IS OUT-OF-ROUND

Beaver grooving tools for "victaulic joints," that cut perfectly circular grooves, regardless of whether the pipe itself is out-of-round, are made by Borden Co., Warren, Ohio. These tools are offered in three models and will cut grooves for couplings in pipes ranging in circumference from ½ inch to 16 inches.

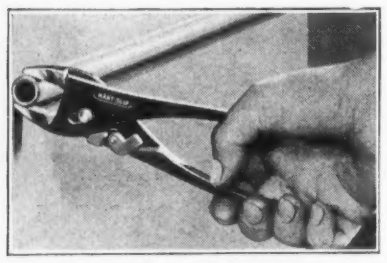
Model No. 12 is a small tool for both grooving and cutting off; it is for hand operation only. Models Nos. 20 and 50 are alike in design; a threaded bolt is placed through the center of the tool, over which is placed a double-ended cone, on either side of which are four links which are expanded by the cone chen the bolt is tightened. This forms a grip and holds the tool rigid in the pipe. The groove may then be cut by either hand or power operation.

A different type of internal locking device is used in Models Nos. 120 and 160, which are used for grooving pipes ranging in size from 8 to 12 inches and from 14 to 16 inches. The tool is placed on the pipe and the internal locking arms rigidly held in position by means of tightening the nut on the front of the tool. Power drive is recommended for use with these two models.

Other products manufactured by Borden Co. include a square-end pipe cutter, a tool for cutting pipe preparatory to grooving; geared pipe threaders, for use either by hand or with power drives, and Beaver power drive, a device for operating grooving tools, pipe cutters and die stocks; this device is portable and operates from the light socket.

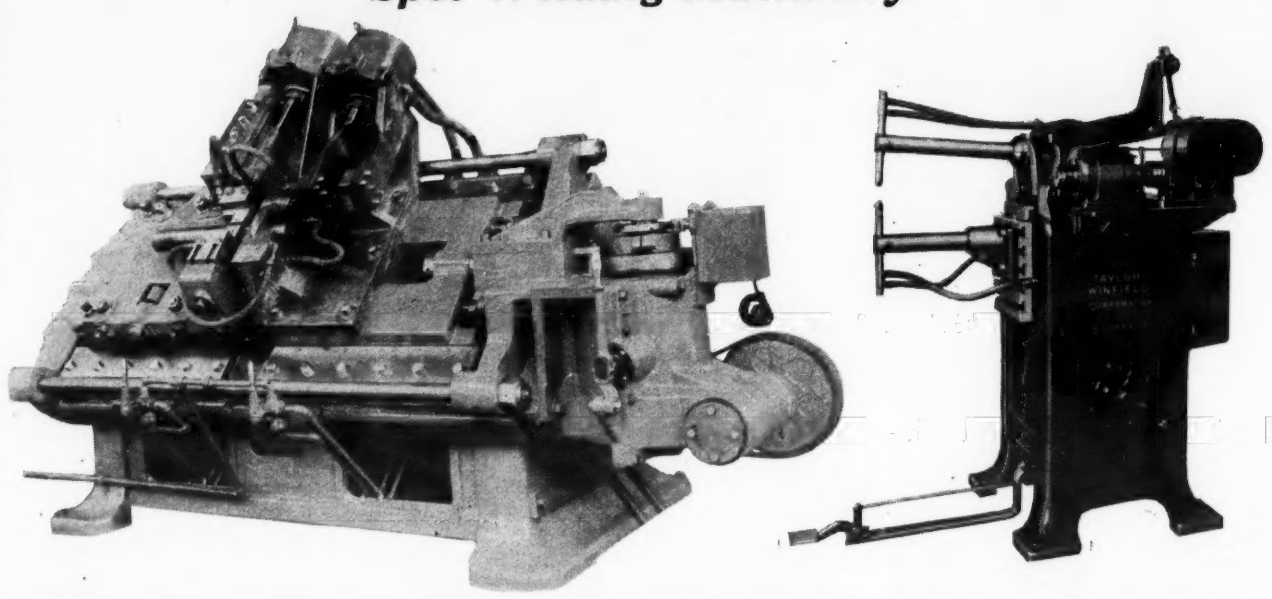
NEW PLIERS USE THREE MECHANICAL PRINCIPLES

Three principles of mechanics, the cam, fulcrum and wedge, have been combined in the construction of pliers manufactured by Kant Slip Plier & Tool Co., 6036 Wentworth Ave., Chicago, Ill. The cam slides the fulcrum to its correct position, irrespective of the load; the sliding action of both the cam and fulcrum combine to wedge the work between the jaws. With the fulcrum always close to the load, tremendous power can be brought to bear on it. A parallel grip on the handles is always obtainable by adjusting the pawl.



Kant Slip Plier

Electric Refrigeration Industry a Big User of Spot Welding Machinery



TWO welding machines manufactured by Taylor-Winfield Corp., applicable to refrigerator manufacturing. (Left)—Standard type butt welder suitable for welding thin gauge sheets by the flash butt method. (Right)—Production type spot welding machine for joining two overlapping pieces of metal

DIRECTORY OF EQUIPMENT & TOOL MANUFACTURERS

(Concluded from Page 19, Column 3)

PRODUCTION

Abbott Ball Co., Hartford, Conn.
Burnishing equipment.

Acme-Detroit Saw Corp.,
528 E. Fort St., Detroit, Mich.
Saw sharpners and saws.

Acme Diamond Tool Co.,
172 Broadway, New York, N. Y.
Diamond tools.

Aeroil Burner Co., Inc.
Asphalt heaters and cork dipping pans.
Park Ave. at 13th St., West New York, N. J.

Almond Mfg. Co., T. R.
Maple Ave., Ashburnham, Mass.
Trade name.....Almond
Drill and lathe chucks.

American Emery Wheel Works, Providence, R. I.
Grinding wheels, abrasives.

Anchor Brass Foundries,
1431 Church St., Detroit, Mich.
Copper hammers.

Armstrong Brothers Tool Co.,
373 N. Francisco St., Chicago, Ill.
Small factory tools.

Avey Drilling Machine Co., Cincinnati, Ohio.
Trade name.....Avey
Multiple spindle and automatic drill presses, cutting off machine, metal cutting saws and vises.

Baker Bros., Toledo, Ohio.
Drill presses.

Batavia Clamp Co., Inc.,
2-3 Center St., Batavia, N. Y.
Clamps.

Charles H. Besley & Co.,
118 Clinton St., Chicago, Ill.
Taps, abrasives.

Binks Spray Equipment Co.,
3114-16 Carroll Ave., Chicago, Ill.
Paint spraying equipment.

Black & Decker Co., Towson, Md.
Electric grinders, screw drivers, finishers, drills, soldering irons, bolt setters, stud drivers.

Black Bros. Co., Inc.,
401 Ninth Ave., Mendota, Ill.
Gluing and veneering equipment, including clamps, pots, clamp carriers, boilers, heaters, mixers, spreaders, presses and veneer taping machines.

G. S. Blakeslee & Co.,
19th and 52nd Aves., Chicago, Ill.
Industrial washing, drying equipment.

E. W. Bliss Co., Brooklyn, N. Y.
Punch presses, shears.

Bridgeport Safety Emery Wheel Co., Inc.,
P. O. Box 2031, Bridgeport, Conn.
Face grinder for flat surfaces, floor grinder and polishing stands and tool grinders.

Brown & Sharpe Mfg. Co.,
Promenade St., Providence, R. I.
Milling, grinding, screw and gear cutting and hobbing machiines, small tools and cutters.

Buckeye Twist Drill Co., Alliance, Ohio.
Drills, reamers, cutters.

Bullard Co.,
Brewster St. and Canfield Ave., Bridgeport, Conn.
Machine tools.

Bury Compressor Co.,
1100 W. 17th St., Erie, Pa.
Air compressors.

Century Saw & Tool Works,
1567 Church St., Detroit, Mich.
Files, tools, saws.

Chicago Pneumatic Tool Co., Detroit, Mich.
Electric grinders, screw drivers, finishers, drills, soldering irons, bolt setters, stud drivers.

Chicago Flexible Shaft Co.,
1150 S. Central Ave., Chicago, Ill.
Gas furnaces.

Cincinnati Milling Machine Co., Cincinnati, O.
Milling machines.

Commercial Steel Testing Corp.,
6535 Livernois Ave., Detroit, Mich.
Carbonizing cyaniding, tool hardening, annealing, heat treating.

Conn Valley Mfg. Co.,
200 Main St., Centerbrook, Conn.
Expansion bits.

Consolidated Machine Tool Corp., Erie, Pa.
Small tools.

Crawford Oven Co.,
340 W. Water St., New Haven, Conn.
Enameling ovens, spray booths.

Cushman Chuck Co.,
902 Windsor St., Hartford, Conn.
Centering chucks.

Cyclops Steel Co., Titusville, Pa.
Industrial diamonds, holders, die blocks.

Detroit Edge Tool Works, Inc.,
3000 E. Woodbridge St., Detroit, Mich.
Shear blades for squaring shears and planer knives for wood working machines.

De Vilbiss Co.,
224 Phillips Ave., Cleveland, Ohio.
Paint and lacquer sprays.

Eberhard Mfg. Co.,
2800 Tennyson Rd., Cleveland, Ohio.
Clamps and tools.

Erie Forge Co., Erie, Pa.
Die blocks.

Espin Machine Works, Philadelphia, Pa.
Milling machines.

Eureka Pneumatic Spray Co.,
Richmond Hill, L. I., New York.
Paint spraying apparatus.

Federal Machine & Welder Co.,
Dana Ave., Warren, Ohio.
Spot, butt and seam, projection, flash and special welding machines.

Ferracute Machine Co., Bridgeport, Conn.
Punch presses, shears.

Ferro Enamel Supply Co.,
2100 Keith Bldg., Cleveland, Ohio.
Porcelain enameling furnaces, box type and continuous type.

Gardner Machine Co., Beloit, Wis.
Trade name.....Gardner
Flat surface grinders, discs, ring wheel and automatic grinders, abrasive discs, polishing and buffing machines.

Gardener Tap & Die Co., Marion, Ohio.
Taps, dies.

Geometric Tool Co.,
Blake & Valley Sts., New Haven, Conn.
Trade name.....Geometric
Taps, die heads, threading machines, grinders and grinding fixture.

Giddings & Lewis Machine Tool Co.,
Fond du Lac, Wis.
Factory machinery. fixtures.

Gisholt Machine Co., Madison, Wis.
Lathes, screw machines, air chucks.

Goodell-Pratt Co., Greenfield, Mass.
Electric drills.

Grand Rapids Blow Pipe Co.,
Grand Rapids, Mich.
Enameling ovens, spray booths.

Greenfield Tap & Die Corp., Greenfield, Mass.
Taps, dies.

Haberkorn & Wood,
2208 W. Fort St., Detroit, Mich.
Machine tools, air chucks, fixtures.

Hendey Machine Co., Torrington, Conn.
Lathes, screw and milling machines.

Frank Hanson Machine Co.,
25 E. Atwater St., Detroit, Mich.
Tools, dies and experimental machine work.

Hanson & Van Winkle Co.,
Chestnut & Van Buren Sts., Newark, N. J.
Plating and polishing equipment, platers of anodes.

Hanson & Whitney Machine Co.,
Hartford, Conn.
Taps, dies, reamers, gauges, keys.

Henry & Wright Machine Co., Hartford, Conn.
Drill presses.

Holcomb Steel Co., Syracuse, N. Y.
Die blocks.

Huffman Mfg. Co., Dayton, Ohio.
Gas furnaces.

Hutto Engineering Co.,
515 Lycaste, Detroit, Mich.
Cylinder grinding machines.

Independent Pneumatic Co., Aurora, Ill.
Electric pneumatic tools.

Ingersoll Machine Co., Rockford, Ill
Milling machines.

Ingersoll Rand Co.,
11 Broadway, New York, N. Y.
Air compressors.

Kropp Forge Co.,
5300 Roosevelt Rd., Chicago, Ill.
Die blocks.

La Blond Machine Tool Co., Cincinnati, Ohio.
Lathes, screw and milling machines.

Landis Tool Co., Waynesboro, Pa.
Cam cutting, grinding attachments.

Leland & Gifford Co., Worcester, Mass.
Machine tools, tapping machines, drill presses.

Lovejoy Tool Co., Inc., Springfield, Vt.
Small tools, specials.

Luers, Inc., 1022 Maple St., Detroit, Mich.
Trade name.....Luers
Cutting-off tools for use with screw machines, turrett and engine lathes.

McCrosky Tool Corp.,
1345 Main St., Meadsville, Pa.
Chucks.

McMullen Tool & Supply Co.,
37 E. Woodbridge St., Detroit, Mich.
Reamers, milling cutters.

Manufacturers Equipment Co.,
5704 West Fillmore St., Chicago, Ill.
Collapsible taps, air chucks.

Markwell Mfg. Co.,
200 Hudson St., New York, N. Y.
Gasket tackers and staples.

Melliser-Hayward Co.,
680 Tenth Ave., New York, N. Y.
Spray booths, paint equipment.

Michigan Tool Co.,
147 Jos. Campau, Detroit, Mich.
Gear hobs, gear shaper cutters, milling cutters, side milling and face milling cutters, end mills, woodruff keyway cutters, metal slitting saws, tool bits, tungsten carbide tools, cutting tool vises and special tools.

Midwest Tool & Mfg Co.,
2360 W. Jefferson, Detroit, Mich.
Reamers, boring tools, light tools.

Millers Falls Co., Millers Falls, Mass.
Wire wheel brushes, drills, grinders, sanders, screw drivers, saws, bits and hack saws.

Mitchell Pattern Works,
2725 Newark, Detroit, Mich.
Wood patterns for forgings.

Monarch Machine Tool Co., Sydney, Ohio.
Lathes, screw machines.

D. E. Morand Machinery Co.,
6505 Grand River Ave., Detroit, Mich.
Lathes, punches, shears, rolls, reamers, belts, heavy machinery.

National Broach Co., Dayton, Ohio.
Grinding wheels, small tools.

Niagara Machine & Tool Co., Buffalo, N. Y.
Punch presses, shears.

Norton Co., 1 Bond St., Worcester, Mass.
Alundum and Crystolon grinding wheels, grinding machines and Alundum polishing abrasive.

Osborn Mfg. Co.,
5401 Hamilton Ave., Cleveland, Ohio.
Cleaning brushes.

Peck, Stow & Wilcox Co., Southington, Conn.
Metal cutting machinery, small tools, punch presses, shears.

Pittsburg Grinding Wheel Co., Rochester, Pa.
Abrasive wheels, safety devices, swing-frame grinding machines.

Pratt & Whitney Co., Hartford, Conn.
Lathes, screw machines.

W. S. Rockwell Co.,
50 Church St., New York, N. Y.
Gas furnaces.

Simonds Saw & Steel Co., Fitchburg, Mass.
Tools, saws.

St. Louis Pipe Bending Co.,
1020 North Main St., St. Louis, Mo.
Copper coil bending machinery.

Star Tool & Die Co.,
2520 24th St., Detroit, Mich.
Shop tools.

L. S. Starrett Co., Athol, Mass.
Tools and precision instruments.

Stow Mfg. Co., Inc.,
443 State St., Binghamton, N. Y.
Trade name.....Stow
Flexible shafts, electric drills, grinders, polishers and sanding machines.

Sullivan Machinery Co.,
412 Peoples Gas Bldg., Chicago, Ill.
Air compressors.

Surface Combustion Co., New York, N. Y.
Gas furnaces.

Tacony Steel Co.,
1416 Chestnut St., Philadelphia, Pa.
Die blocks.

Taylor-Winfield Corp., Warren, Ohio.
Spot and butt welding machines.

Thomson-Gibb Electric Welding Co.,
Lynn, Mass., and Bay City, Mich.
Arc, spot, press, seam, butt, flash, wire fabric and special electric welding machines.

Toledo Machine & Tool Co.,
1420 Hastings St., Toledo, Ohio.
Presses, dies, shears and sheet metal working machinery.

Treadwell Tool Co., Greenfield, Mass.
Taps, dies, screw plates, small tools.

Van Dorn Electric Tool Co., Cleveland, Ohio.
Electric drills, tools, buffers.

Waltham Grinding Wheel Co., Waltham, Mass.
Grinding wheels, oil stones.

Warner & Swasey Co., Cleveland, Ohio.
Lathes.

Warren Tool & Forge Co.,
412 Griswold St., Warren, Ohio.
Small tools.

Weil Machine Co., 313 Bates St., Detroit, Mich.
Drills, reamers, milling cutters.

Whitlock Coil Pipe Co.,
77 South St., Hartford, Conn.
Coil bending machinery.

Whitney Metal Tool Co.,
98 Forbes St., Sandwich, Ill.
Angle iron bending machinery.

Winter Brothers Co., Wrenthen, Mass.
Taps, dies.

Wire Brush Co., Springfield, Ohio.
Wire polishing brushes.

Wood & Spencer Co., Cleveland, Ohio.
Small tools.

Young Brothers, 6500 Mack Ave., Detroit, Mich.
Insulated steel panel oven for drying coils, ovens for baking finishes on parts.

Electric Refrigeration Distributors and Dealers

You need the PEERLESS line of compressors.

PEERLESS units give you a COMPLETE line, ranging from one to ten tons.

PEERLESS Perfected Multiple Apartment System is recognized leader in its field. Full details given on request. Our record warrants your most exacting investigation.

PEERLESS ICE MACHINE CO.
515 W. 35th St.
CHICAGO, ILLINOIS

precision built

Motor, Transmission, Eccentric *and* Crank Shafts

Made to your specifications.
Send us your blue prints—
We will send you our prices.

MODERN MACHINE WORKS, INC.
196 Milwaukee St. MILWAUKEE, WIS.

Coming to BALTIMORE?

Stop at the famous Hotel RENNERT

FINE LOCATION
LARGE PLEASANT ROOMS
Rooms for one person:
$2.00 to $5.00 daily
Two persons:
$4.00 to $7.00 daily
World Renowned Restaurant
Real luscious Southern cooking —oyster bar—finest sea food— worth a visit just to dine at
THE RENNERT
Ownership-Management
ED. DAVIS

WELCOME to NEW YORK *and* The HOTEL GOVERNOR CLINTON
31ST ST. AND 7TH AVE.
opposite PENNA. R.R. STATION

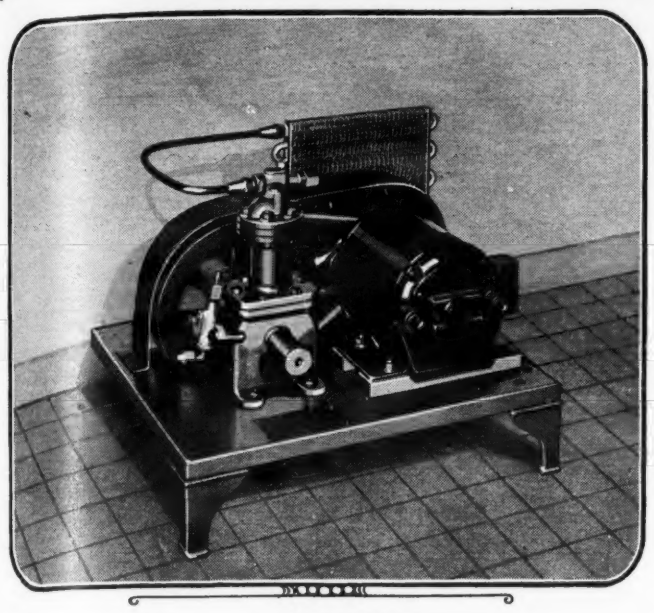
1200 Rooms each with Bath and Servidor
ERNEST G. KILL
Gen. Mgr.
ROOM AND BATH · 3.00 UP

The BEST and BIGGEST Line for the BIGGEST Commercial Field in America

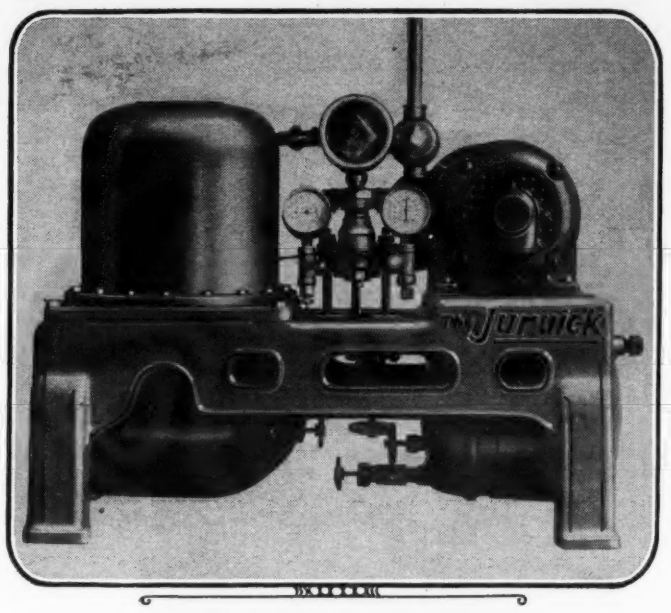
A complete variety of super-improved equipment for the great Ice Cream and Soft Drink trade, ICE-CREAM CABINETS, SODA FOUNTAINS, RESTAURANT COOLERS, BOTTLE COOLERS, Etc., for use with ALL types of Refrigerating units. ***Write for catalogue and prices—state type of machine you make or handle.***

AURORA METAL CABINET WORKS, INC., Aurora, Ill.

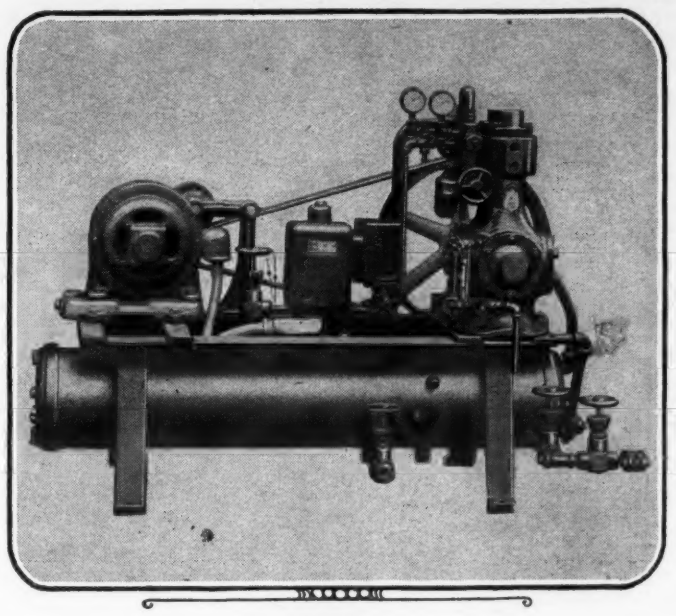
ELECTRIC REFRIGERATION DIRECTORY



ABSOPURE



AMERICAN ENGINEERING



BAKER

A

Absopure Refrigeration Corp.,
1560 Theodore St., Detroit, Mich.
Trade name.....**Absopure**

High Side
Standard size—5. Drive—V-belt.
Compressor—Reciprocating. Seal—Bellows.
Motor—1/6 to 1½ hp.
Control—Pressure and temperature.
Method of cooling—Air and water.
Water valve—Electric. Make—American Radiator.
Condenser—Radiator type, plain tube.
Refrigerant—Methyl chloride.
Capacities (ice melting)—100 to 1500 lbs.
Low Side
Standard sizes—8. Expansion valve—Bellows.
Method of cooling—Direct or indirect.
Capacities—4 to 30 cu. ft.
Freezing trays—2 to 7. Ice cubes—56 to 432.

American Engineering Co.,
Aramingo Ave. & Cumberland St., Philadelphia, Pa.
Trade name.....**Juruick**

High Side
Standard sizes—6. Drive—V-belt.
Compressor—Reciprocating. Seal—Metallic.
Method of cooling—Water. Water valve—Pressure.
Condenser—Shell and tube. Motor—½ to 10 hp.
Refrigerant—Ammonia. Control—Temperature.
Capacities (ice melting)—¼ to 5 tons.
Low Side
Method of cooling—Direct or indirect.
Dry or flooded systems. Float valve—Low side.
Expansion valve—Diaphragm. Make—Alco.

American Ice Machine Co.,
117 N. Maryland Ave., Glendale, Calif.
Trade name.....**American**

High Side
Compressor—Reciprocating. Drive—Belt.
Seal—Metallic packing, sylphon bellows.
Motor—1/6 to 10 hp.
Control—Pressure and temperature.
Method of cooling—Air and water.
Condenser—Shell and tube, finned.
Refrigerant—Argonium, heliox.
Capacities (ice melting)—100 lbs. to 5 tons.
Low Side
Method of cooling—Direct or indirect.
Dry or flooded systems. Float valve—Low side.
Expansion valve—Diaphragm and bellows.
Freezing trays—2 to 4. Ice cubes—30 to 60.

Armstrong Machinery Co., Inc.,
3201 E. Riverside, Spokane, Wash.
Trade name.....**Armstrong**

High Side
Compressor—Reciprocating. Drive—Belt.
Seal—Ring Method of cooling—Water.
Condenser—Pipe. Motor—¼ to 50 hp.
Control—Temperature and pressure.
Refrigerant—Ammonia.
Capacities (ice melting)—20 lbs. to 20 tons.
Low Side
Method of cooling—Direct or indirect.

Audiffren Refrigerating Machine Co.,
285 Madison Ave., New York, N. Y.
Trade name.....**Audiffren**

High Side
Compressor—Reciprocating. Drive—Belt.
Seal—Hermetic. Method of cooling—Air and water.
Condenser—Rotating drum. Motor—⅓ to 7½ hp.
Control—Temperature.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—20 lbs. to 3 tons.
Low Side
Method of cooling—Indirect.
Ice Cubes—28 to 600.

Automatic Freezer Corp.,
63 N. Howell, Hillsdale, Mich.
Trade name.....**Carefree**

High Side
Standard sizes—2. Seal—Sylphon.
Compressor—Reciprocating. Drive—Belt.
Motor—⅓ to 1/6 hp. Make—Century.
Control—Temperature. Make—Penn.
Method of cooling—Air. Condenser—Radiator type.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—150 to 350 lbs.
Low Side
Standard sizes—6 Flooded system.
Method of cooling—Direct or indirect.
Float valve—Low side. Make—Smith.
Capacities—5 to 100 cu. ft.
Freezing trays—2 to 12. Ice cubes 32 to 192.

B

Baker Ice Machine Co., Inc.,
Evans and 16th St., Omaha, Nebr.
High Side
Standard sizes—11. Motor—½ to 100 hp.
Compressor—Reciprocating. Drive—V-belt.
Control—Pressure and temperature.
Method of cooling — Water. Water valve—Pressure.
Refrigerant—Ammonia and methyl chloride.
Capacities (ice melting)—500 lbs. to 70 tons.

Bliss Co., E. W., Salem, Ohio.
Trade name ..... Neibling
Commercial refrigerating machines.

Brenner Co., Inc., Alphonse
1229 Texas Ave., Shreveport, La.
Trade name.....**Brenner**

High Side
Compressor—Reciprocating. Drive—Belt.
Seal—Sylphon. Make—Kulair.
Method of cooling—Air and water.
Condenser—Fin type. Motor—Wagner 1/6 to 1½ hp.
Control—Pressure and temperature. Make—Penn., Ranco.
Refrigerant—Sulphur Dioxide.
Capacity (ice melting)—40 to 1200 lbs.
Low Side
Standard sizes—7. Flooded system.
Float valve—Low side. Make—Fedders.
Capacities—5 to 50 cu. ft.
Freezing trays—2 to 5. Ice cubes—56 to 140.

Brunswick-Kroeschell Co., New Brunswick, N. J.
Trade name.....**Brunswick; Kroeschell**

High Side
Compressor — Reciprocating. Drive — Belt or direct.
Control—Manual and automatic.
Method of cooling—Water.
Water valve—Pressure.
Condenser—Double pipe, shell and tube.
Refrigerant—Ammonia and carbon dioxide.
Capacities (ice melting)—¼ ton and up.
Low Side
Method of cooling—Direct and indirect.
Expansion valve—Diaphragm.

Bryant Electric Refrigerator Corp.,
New Milford, Pa.
Trade name.....**Bryant**

High Side
Standard sizes—7. Drive—Belt.
Compressor—Reciprocating. Seal—Bellows.
Motor 1/6 to 1½ hp. Make—Century.
Control—Temperature. Make—Ranco.
Method of cooling—Air, water. Water valve—electric.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—145 to 800 lbs.
Low Side
Flooded systems. Method of cooling—Direct.
Float valve—Low side. Make—Fedders.
Capacity—4 to 50 cu. ft.
Freezing trays—2 to 20. Ice cubes—20 to 400.

C

California Electric Refrigerators, Inc.,
5th & Dwight, Berkeley, Calif.
Trade name.....**Calectro Frost**

High Side
Standard sizes—7. Drive—V-belt.
Compressor—Reciprocating. Seal—Bellows.
Motor 1/6 to 1½ hp. Make—Century.
Control—Pressure.
Method of cooling—Air. Condenser—Radiator type.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—35 to 500 lbs.
Low Side
Standard sizes—10. Flooded system.
Method of cooling—Direct. Float Valve—Low side.
Capacities—4 to 15 cu. ft.
Freezing trays—2 to 5. Ice cubes—30 to 75.

Calvert Electric Refrigeration Co.,
Woodberry, Baltimore, Md.
Trade name.....**Calvert**

High Side
Standard sizes—5. Drive—Belt.
Compressor—Reciprocating. Seal—Metallic.
Motor—1/4 to 1½ hp. Make—Century and G. E.
Control—Pressure.
Method of cooling—Air. Condenser—Radiator type.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—150 to 1000 lbs.
Low Side
Standard sizes—5. Dry system.
Method of cooling—Direct. Float valve—High side.
Capacities—5 to 50 cu. ft.
Freezing trays—4 to 10. Ice cubes—64 to 160.

Carbondale Machine Co., Carbondale, Pa.
Trade name.....**Carmaco**

High Side
Compressor—Reciprocating. Drive—Tex rope.
Motor—3 to 7½ hp. Control—Temperature, pressure.
Method of cooling—Water. Condenser—Tubular.
Water valve—Pressure.
Capacity (ice melting)—1 to 4 tons.
Low Side
Method of cooling—Direct or indirect.
Expansion valve—Diaphragm.

Climax Electrical Refrigeration Co.,
Clinton, Iowa.
Trade name.....**Climax**

High Side
Standard sizes—8. Drive—Direct and belt.
Compressor—Rotary and reciprocating.
Refrigerant—Ammonia and methyl chloride.
Capacities (ice melting)—75 lbs. to 4 tons.

Cooke Electric Refrigeration Co.,
30 N. Green St., Chicago, Ill.
Trade name.....**Cerco**

High Side
Standard sizes—5. Drive—V-belt.
Compressor—Reciprocating.
Seal—Cooke Seal Ring. Motor—1/6 to 2 hp.
Control—Temperature.
Method of cooling—Air and water.
Water valve—Pressure. Condenser—Tubing.
Refrigerant—Ammonia.
Capacities (ice melting)—125 to 2000 lbs.
Low Side
Dry system. Method of cooling—Direct or indirect.
Capacities—4 to 1500 cu. ft.
Freezing trays—4 to 600. Ice cubes—48 to 800.

Copeland Products, Inc.,
332 Cass Ave., Mt. Clemens, Mich.
Trade name.....**Copeland**

High Side
Standard sizes—13. Drive—Belt.
Compressor—Reciprocating. Seal—Bellows.
Motor—1/6 to 1½ hp. Make—Dayfan.
Control—Pressure and temperature. Make—
(*See top of next column*)

Bishop & Babcock and Penn.
Method of cooling—Air and water.
Water valve—Pressure.
Condenser—Spiralfin coil and radiator type.
Refrigerant—Iso butane and methyl chloride.
Low Side
Standard sizes—22. Dry or flooded system.
Method of cooling—Direct or indirect.
Expansion valve—Bellows.
Float valve—Low side. Make—Fedders.
Capacities—5 to 20½ cu. ft.
Freezing trays—3 to 12. Ice cubes—108 to 432.

Creamery Package Mfg. Co.,
1243 W. Washington Blvd., Chicago, Ill.
Trade name.....**C. P.**

High Side
Compressor—Reciprocating. Drive—Belt.
Motor—½ to 7½ hp. Seal—Metal packing.
Control—Temperature. Make—Time-O-Stat.
Method of cooling—Water. Condenser—Plain tube.
Water valve—Pressure. Make—Peerless.
Refrigerant—Ammonia.
Capacities (ice melting)—500 lbs. to 4 tons.
Low Side
Dry or flooded system. Float valve—Low side.
Method of cooling—Direct or indirect.
Expansion valve—Diaphragm.

Crosley Radio Corp.,
3401 Colerain Ave., Cincinnati, Ohio.
Trade name.....**Icyball**
Non-electric, non-automatic, ammonia absorption type unit, the refrigeration cycle being actuated by immersion in hot water.

D

Dairy Refrigeration Co.,
311-64th Ave., Milwaukee, Wis.
Trade name.....**Glenn**

High Side
Standard sizes—3. Drive—V-belt.
Compressor—Reciprocating. Seal—Bellows.
Motor—⅓ to 3 hp. Make—Westinghouse, Master.
Control—Temperature. Make—Mercoid.
Method of cooling—Air. Condenser—Fin coil.
Refrigerant—Methyl chloride.
Capacities—300 lbs. to 1 ton.
Low Side
Standard sizes—5. Dry expansion system.
Method of cooling—Direct or indirect.
Expansion valve—Bellows. Make—American.

Deer Co., Inc., A. J.,
Buffalo & West Sts., Hornell, N. Y.
Trade name.....**Royal**

High Side
Standard sizes—2. Drive—Belt.
Compressor—Reciprocating. Seal—Sylphon.
Motor—½ to ¾ hp.
Control—Pressure. Make—Time-O-Stat.
Method of cooling—Air. Condenser—Radiator type.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—300 to 400 lbs.
Low Side
Standard sizes—18. Dry or flooded system.
Method of cooling—Direct. Float valve—Low side.
Expansion valve—Bellows. Make—American.
Capacities—18 to 120 cu. ft.

Detroit Ice Machine Co.,
12th St. at Pine, Detroit, Mich.
Heavy refrigerating machinery.

Devon Manufacturing Co.,
2 Brooks St., Brighton, Mass.
Trade name.....**Devon**

High Side
Standard sizes—1. Drive—Belt.
Compressor—Reciprocating. Motor—¼ hp.
Control—Temperature. Method of cooling—Air.
Refrigerant—Air.
Capacity (ice melting)—100 lbs.
Low Side
Capacities—5 to 12 cu. ft.
Freezing trays—2 to 8. Ice cubes—42 to 200.

Dole Refrigerating Machine Co.,
1209 Washington Blvd., Chicago, Ill.
Trade name.....**Doleco**

High Side
Standard sizes—8. Drive—V-belt.
Compressor—Reciprocating. Seal—Packing.
Motor—¼ to 3 hp. Make—Century.
Control—Temperature. Make—Time-O-Stat.
Water valve—Pressure. Make—Penn.
Condenser—Combination tube and receiver.
Method of cooling—Water.
Refrigerant—Ammonia.
Capacities (ice melting)—250 to 3500 lbs.
Low Side
Dry system. Method of cooling—Direct.
Expansion valve—Diaphragm. Make—Alco.

E

Electro-Kold Corp.,
151 S. Post St., Spokane, Wash.
Trade name.....**Electro-Kold**

High Side
Standard sizes—6. Drive—V-belt.
Compressor—Reciprocating. Seal—Diaphragm.
Motor—1/6 to 1½ hp. Make—Century, Wagner, Emerson, G. E.
Control—Pressure.
Method of cooling—Air and water.
Water valve—Pressure. Make—Protectostat.
Refrigerant—Sulphur dioxide.
Capacities—50 to 2000 lbs.
Low Side
Standard sizes—71. Dry system.
Method of cooling—Direct. Float valve—Low side.
Expansion valve—Diaphragm.
Capacities—5 to 7000 cu. ft.
Freezing trays—2 to 18. Ice cubes—24 to 380.

Electrolux Refrigerator Sales, Inc.
Evansville, Ind.
Trade name ..... **Electrolux**
Ammonia absorption system operated by gas or electric heat.
High Side
Standard sizes—9. Seal—Hermetic.
Control—Temperature. Make—Tagliabue.
Method of cooling—Water.
Condenser—Steel tube.
Refrigerant—Ammonia.
Capacities (ice melting)—50 to 100 lbs.
Low Side
Standard sizes—9. Flooded system.
Method of cooling—Direct.
Capacities—4 to 10 cu. ft.
Freezing trays—4 to 7. Ice cubes—36 to 70.

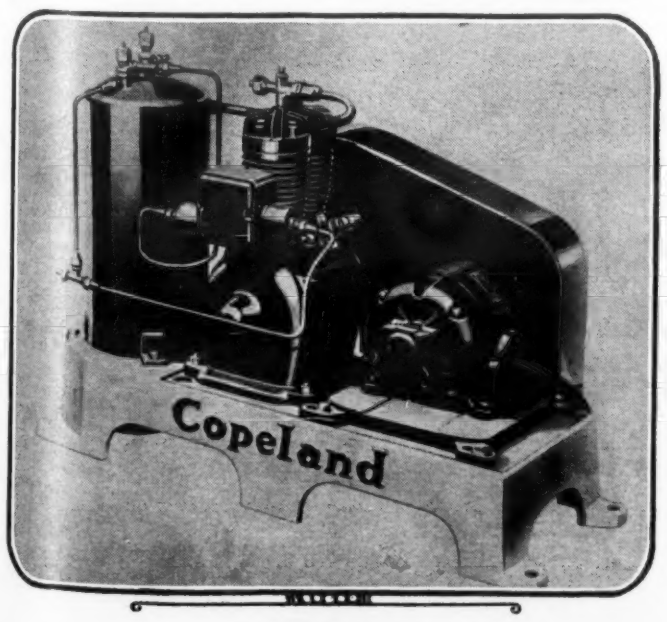
Excelsior Motor Mfg. & Supply Co.,
3701 Cortland St., Chicago, Ill.
Trade name.....**Excelsior**

High Side
Standard sizes—4. Drive—V-belt.
Compressor—Reciprocating. Seal—Cooke Seal Ring.
Motor—½ to 2 hp. Make—Century.
Control—Temperature. Make—American Radiator.
Method of cooling—Water. Condenser—Plain tube.
Water valve—Pressure. Make—Peerless.
Refrigerant—Ammonia.
Capacities (ice melting)—500 to 2000 lbs.
Low Side
Dry system. Method of cooling—Direct.
Expansion valve—Diaphragm. Make—Alco.

F

Fessler Mfg. Co.,
19th & Central, Kansas City, Mo.
Trade name.....**Femcold**

High Side
Compressor—Reciprocating. Drive—Belt.
Motor—¼ hp. Control—Pressure.
Method of cooling—Air. Condenser—Fin tube.
Refrigerant—Methyl chloride.
Capacity (ice melting per hour)—10½ lbs.
Low Side
Method of cooling—Direct.
Freezing trays—2 to 4. Ice cubes—56 to 112.



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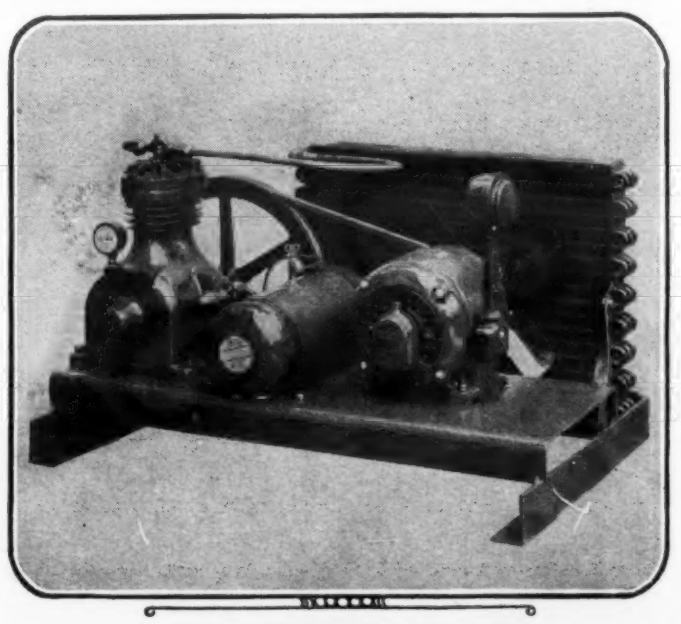
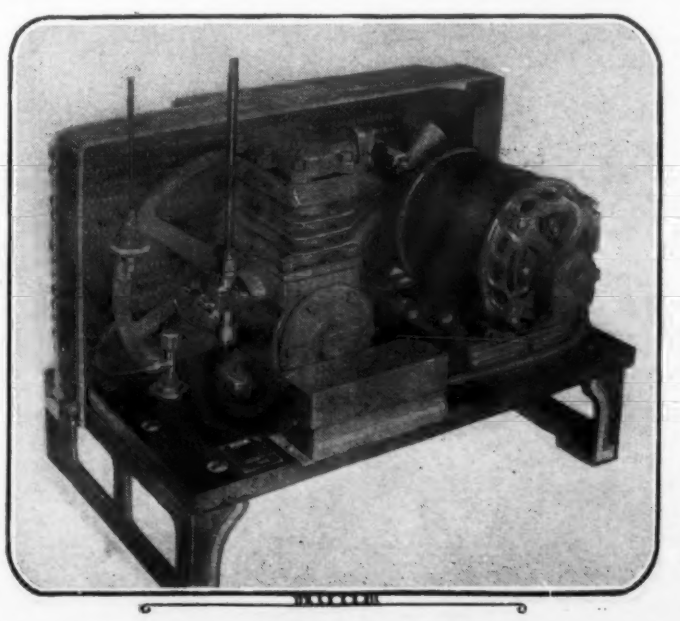
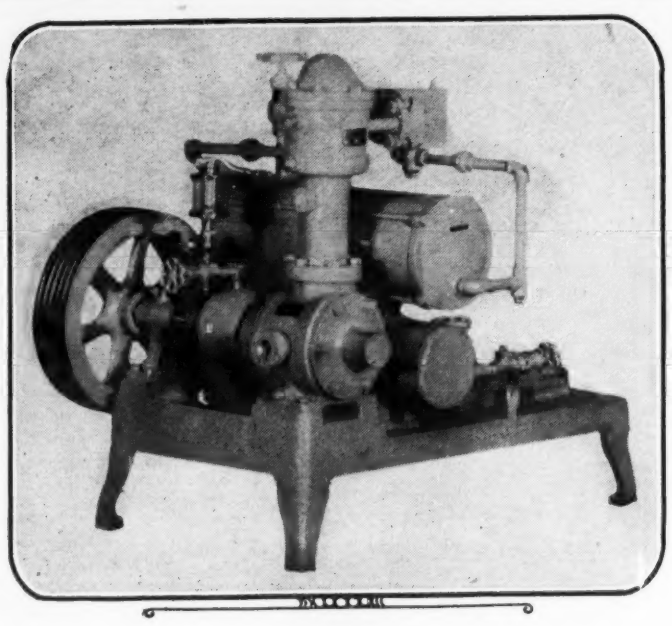


DAIRY REFRIGERATION



DEER

Manufacturers of Automatic Refrigeration Systems



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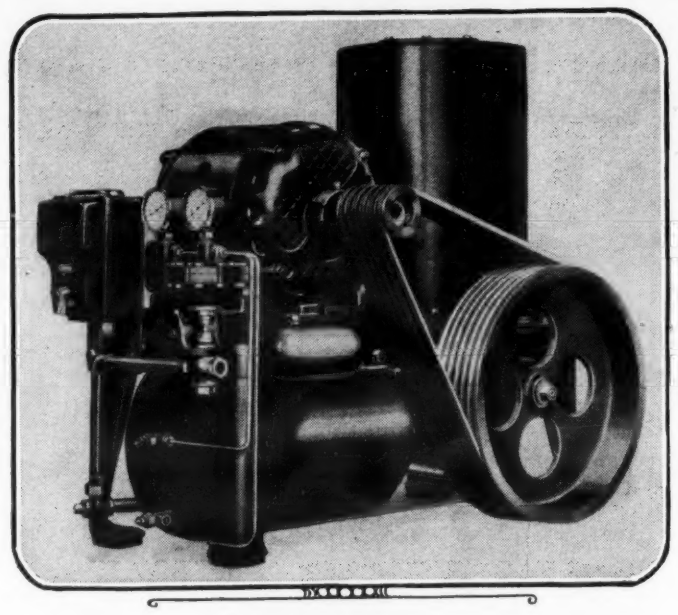

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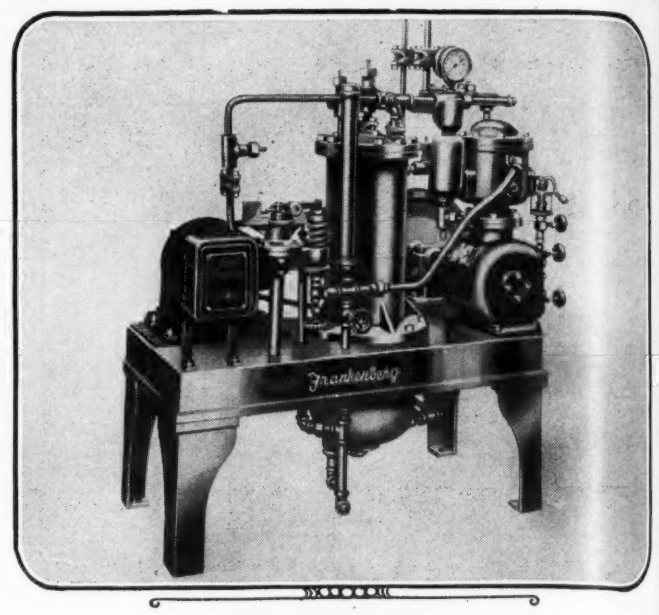


FRANKENBERG

Frankenberg Refrigeration Co.,
East Main & Florida Sts., Belleville, Ill.
Trade name.....**Frankenberg**

High Side
Standard sizes—4.
Refrigerant—Sulphur dioxide and ammonia.
Capacities (ice melting)—500 lbs. to 2 tons.

Low Side
Method of cooling—Direct or indirect.

Frick Co., Waynesboro, Pa.
Trade name.....**Frick**

High Side
Compressor—Reciprocating.
Motor—1 hp. and up.
Refrigerant—Ammonia and carbon dioxide.
Capacities (ice melting)—½ ton up.

Frigidaire Corp., Dayton, Ohio.
Trade name.....**Frigidaire**

High Side
Standard sizes—9. Drive—V-Belt.
Compressor—Reciprocating. Seal—Metallic.
Motor—1/6 to 1½ hp. Control—Pressure.
Method of cooling—Air and water.
Water valve—Pressure.
Condenser—Plain tube and radiator type.
Refrigerant—Sulphur dioxide.
Capacities (ice melting based on 50% compressor running time)—40 to 500 lbs.

Low Side
Standard sizes—44. Dry or flooded system.
Method of cooling—Direct and indirect.
Expansion valve—Diaphragm. Float valve—Low side.
Freezing trays—2 to 7. Ice cubes—24 to 168.

Frigid Zone Mfg. Co., Inc.,
2809 Third Ave., Seattle, Wash.
Trade name.....**Frigid Zone**

High Side
Standard sizes—5. Drive—Belt.
Compressor—Reciprocating. Seal—Sylphon.
Motor—1/6 to 1½ hp. Make—Wagner, Century.
Control—Pressure and temperature.
Method of cooling—Air and water.
Water valve—Pressure. Condenser—Coil.
Refrigerant—Sulphur dioxide.
Capacities—25 to 1000 lbs.

Low Side
Standard sizes—8.
Method of cooling—Direct or indirect.

Frig-o-matic, Ltd.,
Morrell St., Brantford, Ont., Canada.
Trade name.....**Frig-o-matic**

High Side
Standard sizes—4. Drive—Belt.
Compressor—Reciprocating. Seal—Cooke Seal Ring.
Motor—1/6 to ½ hp. Make Century, Wagner.
Temperature—Pressure and temperature. Make—Mercoid, Ranco.
Method of cooling—Air. Condenser—Radiator type.
Refrigerant—Sulphur dioxide.
Capacities—160 to 430 lbs.

Low Side
Standard sizes—4. Flooded system.
Method of cooling—Direct. Float valve—Low side.
Capacities—8 to 20 cu. ft.
Freezing trays—1 to 4. Ice cubes—28 to 112.

G

General Electric Co., Electric Refrigeration Dept. Hanna Bldg., Cleveland, Ohio.
Trade name.....**General Electric**

High Side
Standard sizes—5. Drive—Direct.
Compressor—Reciprocating. Motor—1/10 hp.
Method of cooling—Air. Condenser—Plain tube.
Control—Temperature.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—50 to 350 lbs.

Low Side
Standard sizes—7. Flooded system.
Method of cooling—Direct or indirect.
(See top of next column)

Float valve—High side.
Capacities—4 to 70 cu. ft.
Freezing trays—2 to 4. Ice cubes—48 to 112.

General Refrigerating & Mfg. Corp.,
411 Kraemer Bldg., Portland, Ore.
Trade name.....**King Boreas**

General Refrigeration Co., Beloit, Wis.,
Trade name.....**Lipman**

High Side
Standard sizes—14. Drive—Belt.
Compressor—Reciprocating. Seal—Oil.
Motor—½ to 40 hp. Make—G. E., Wagner.
Control—Temperature. Make—Time-O-Stat.
Method of cooling—Water.
Water valve—Pressure and governor. Make—Refrigerating Specialties Co.
Condenser—Shell and tube and shell and coil.
Refrigerant—Ammonia.
Capacities—400 lbs. to 20 tons.

Low Side
Dry system. Expansion valve—Diaphragm.
Method of cooling—Direct or indirect.

General Utilities Co.,
199 Exchange St., Bangor, Maine.
Trade name.....**General Utilities**

High Side
Standard sizes—4. Drive—Belt.
Compressor—Reciprocating. Seal—Bellows.
Motor—1/6 to ½ hp. Make—Century, Wagner.
Method of cooling—Air. Condenser—Radiator type.
Refrigerant—Methyl chloride.
Control—Temperature.
Capacities—125 to 260 lbs.

Low Side
Standard sizes—3. Dry system.
Method of cooling—Direct.
Expansion valve—Diaphragm.
Capacities—4 to 30 cu. ft.
Freezing trays—1 to 4. Ice cubes—24 to 96.

H

Hartford Engineering & Machine Co.,
Aberdeen, Md.
Trade name.....**Everkold**

High Side
Compressor—Reciprocating. Drive—Belt.
Motor—⅛ and 1/6 hp. Seal—Bellows.
Method of cooling—Air. Condenser—Fin coil.
Control—Temperature and pressure.
Refrigerant—Sulphur dioxide.

Low Side
Standard sizes—1. Flooded system.
Float valve—Low side. Capacity—5 cu. ft.

Haven Manufacturing Co.,
486 Milwaukee St., Milwaukee, Wis.
Trade name.....**Haven**

Holbrook Mfg. Co., Inc.,
903 N. Main St., Los Angeles, Calif.
Trade name.....**Holbrook**

High Side
Standard sizes—8. Drive—Belt.
Compressor—Reciprocating. Seal—Sylphon.
Motor—1/6 to 2 hp. Make—Wagner, Century.
Control—Temperature. Make—American Radiator.
Method of cooling—Air and water.
Water valve—Pressure. Make—Penn.
Condenser—Fin coil, radiator type.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—60 to 2000 lbs.

Low Side
Standard sizes—32. Dry or flooded system.
Method of cooling—Direct or indirect.
Expansion valve—Bellows. Make—American.
Float valve—Low side.
Capacities—4 to 12 cu. ft.
Freezing trays—2 to 12. Ice cubes—30 to 251.

Holmes Products, Inc., Bridgeport, Conn.
Trade name.....**Holmes**

Howe Ice Machine Co.,
2825 Montrose Ave., Chicago,, Ill.
Trade name.....**Howe**
(See top of next column)

High Side
Standard sizes—14. Drive—V-belt.
Compressor — Reciprocating. Seal — Metallic Packing.
Motor—1 to 200 hp. Condenser—Plain tube.
Control—Pressure and temperature.
Method of cooling—Water.
Water valve—Pressure.
Refrigerant—Ammonia and methyl chloride.
Capacities (ice melting)—¾ to 142 tons.

Low Side
Dry or flooded system.
Method of cooling—Direct or indirect.
Expansion valve—Diaphragm. Make—Alco.

High Side

I

Iceberg Mfg. Co., Gardner, Mass.
Trade name.....**Ice-Berg**

High Side
Standard sizes—2. Drive—Belt.
Compressor—Reciprocating. Seal—Bellows.
Motor—1/6 to ¼ hp. Make—G. E., Wagner and Century.
Control—Temperature. Make—Ranco.
Method of cooling—Air. Condenser—Fin coil.
Refrigerant—Methyl chloride.
Capacities (ice melting)—100 to 200 lbs.

Low Side
Standard sizes—10. Method of cooling—Indirect.
Expansion valve—Bellows. Make—American Radiator.
Capacities—4 to 16 cu. ft.
Freezing trays—2 to 7. Ice cubes—24 to 168.

IcElect Corp., 1102 Harney St., Omaha, Nebr.
Trade name.....**IcElect**

High Side
Standard sizes—6. Drive—Belt.
Compressor—Reciprocating. Seal—Oil thrust.
Motor—1/6 to 1½ hp. Control—Temperature. Make—Penn, Bishop & Babcock.
Method of cooling—Air. Condenser—Fin.
Refrigerant—Sulphur dioxide.
Capacities—150 to 1700 lbs.

Low Side
Dry or flooded system.
Method of cooling—Direct.

Icemaster Co.,
200 Merrimack St., Haverhill, Mass.
Trade name.....**Icemaster**

High Side
Standard sizes—6. Drive—Belt and gear.
Compressor—Reciprocating. Seal—Diaphragm.
Motor—1/6 to 2 hp. Make—Wagner, Century and Emerson.
Control—Temperature. Make—Mercoid.
Method of cooling—Air. Condenser—Radiator.
Refrigerant—Methyl chloride.
Capacities—125 to 1800 lbs.

Low Side
Standard sizes—10. Dry system.
Method of cooling—Direct.
Expansion valve—Diaphragm.
Capacities—4 to 14 cu. ft.
Freezing trays—3 to 10. Ice cubes—36 to 240.

Isko Co., 2362 Clybourn Ave., Chicago, Ill.
Trade name.....**Isko**

High Side
Standard sizes—2. Drive—Direct.
Compressor—Rotary.
Seal—Plastic packing. Make—Cooke.
Motor—¼ to 3 hp. Make—Century G. E. and Emerson.
Control—Pressure and temperature. Make—Penn.
Method of cooling—Water. Water valve—Pressure. Make—Cash Valve.
Refrigerant—Sulphur dioxide.
Capacities—100 to 2500 lbs.

Low Side
Dry or flooded system.
Method of cooling—Direct or indirect.

J

Jack Frost Refrigeration, Ltd.,
347 Sorauren Ave., Toronto, Ont., Canada.
Trade name.....**Jack Frost**

High Side
Standard sizes—9. Drive—Direct.
Compressor—Rotary.
Seal—Spring. Make—Cooke Seal Ring.
Motor—1/6 to 5 hp. Make—Century.
Control—Temperature and pressure. Make—Mercoid, Time-O-Stat.
Method of cooling—Air and water. Water valve—Electric. Make—Automatic Switch.
Condenser—Plain tube, fin coil, radiator type.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—125 to 4000 lbs.

Low Side
Standard sizes—12. Dry or flooded system.
Method of cooling—Direct or indirect.
Expansion valve—Diaphragm or bellows.
Float valve—Low side. Capacities—8 to 56 cu. ft.
Freezing trays—1 to 16. Ice cubes—28 to 432.

K

Kelvinator Sales Corporation,
14250 Plymouth Road, Detroit, Mich.
Trade name.....**Kelvinator**

High Side
Standard sizes—17. Drive—Belt.
Compressor—Reciprocating. Seal—Bellows.
Motor—1/6 to 1 hp.
Control—Pressure and temperature.
Method of cooling—Air and water.
Water valve—Pressure. Condenser—Radiator.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—75 to 1060 lbs.

Low Side
Standard sizes—34. Dry or flooded system.
Method of cooling—Direct or indirect.
Expansion valve—Bellows. Float valve—Low side.
Capacities—4 cu. ft. up.
Freezing trays—2 to 9. Ice cubes—42 to 243.

Keokuk Refrigerating Co.,
12th & Johnson Sts., Keokuk, Iowa.
Trade name.....**Keokuk**

High Side
Standard sizes—4. Drive—Gear and direct.
Compressor—Reciprocating. Seal—Bellows.
Motor—1/6 to ⅓ hp. Make—G. E. and Century.
Control—Temperature.
Method of cooling—Air. Condenser—Flat tube.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—100 to 250 lbs.

Low Side
Standard sizes—7. Dry system.
Method of cooling—Direct.
Expansion valve—Diaphragm.
Capacities—4 to 55 cu. ft.
Freezing trays—2 to 6. Ice cubes—36 to 126.

Kulair Corporation,
Kensington Ave. & M St., Philadelphia, Pa.
Trade name.....**Kulair**

High Side
Standard sizes—22. Drive—Belt.
Compressor—Reciprocating. Seal—Sylphon.
Motor—1/6 to 3 hp. Make—Wagner and G. E.
Control—Temperature and pressure. Make—Time-O-Stat, American Radiator and Penn.
Method of cooling—Air and water.
Water valve—Electric, solenoid.
Condenser—Fin tube radiator.
Refrigerant—Sulphur dioxide, methyl chloride.
Capacities (ice melting)—95 to 2590 lbs.

Low Side
Standard sizes—8. Dry or flooded system.
Method of cooling—Direct.
Expansion valve—Bellows. Make—American.
Float valve—Low side. Make—Fedders.
Capacities—1 to 40 cu. ft.
Freezing trays—4 to 18. Ice cubes—84 to 378.

M

Mechana-Kold Corp., Bay Shore, N. Y.
Trade name.....**Mechana-Kold**

High Side
Standard sizes—2. Drive—Belt.
Compressor—Reciprocating. Seal—Floating ring type. Control—Thermostat.
Motor—1/6 to ⅓ hp. Make—Wagner, Century and Dayfan.
Method of cooling—Air. Condenser—Fin coil.
Refrigerant—Methyl chloride.
Capacities (ice melting per hr.)—5 to 10 lbs.

Low Side
Standard sizes—5. Dry system.
Method of cooling—Direct.
Expansion valve—Bellows. Make—American.
Capacities—4½ to 25 cu. ft.
Freezing trays—2 to 6. Ice cubes—48 to 144.

Merchant & Evans,
2035 Washington St., Philadelphia, Pa.
Trade name.....**M. & E.**

High Side
Standard sizes—7. Drive—Belt.
Compressor—Reciprocating.
Seal—Bellows. Make—Bishop & Babcock.
Motor—1/6 to 1½ hp. Make—Wagner.
Control—Pressure and temperature. Make—American Radiator.
Method of cooling—Air. Condenser—Radiator.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—100 to 1000 lbs.

Low Side
Standard sizes—23. Flooded system.
Method of cooling—Direct. Float valve—Low side.
Expansion valve—Bellows. Make—American.
Freezing trays—2 to 30. Ice cubes—56 to 360.

Metal Saw & Machine Co., Inc.
40 Napier St., Springfield, Mass.
Coldak refrigerating machines.

Mitycold Corporation,
111 W. Bay St., Jacksonville, Fla.
Trade name.....**Mitycold**

High Side
Compressor—Reciprocating. Drive—Direct.
Motor—1/6 to ½ hp. Make—Westinghouse.
Control—Temperature. Make—Bishop & Babcock.
Method of cooling—Air. Condenser—Fin coil.
Refrigerant—Sulphur dioxide, methyl chloride.
Capacities—100 to 250 lbs.

Low Side
Standard sizes—2. Flooded system.
Method of cooling—Direct.
Float valve—Low side. Make—American.
Capacities—4½ to 40 cu. ft.
Ice cube trays—2 to 10. Ice cubes—60 to 300.

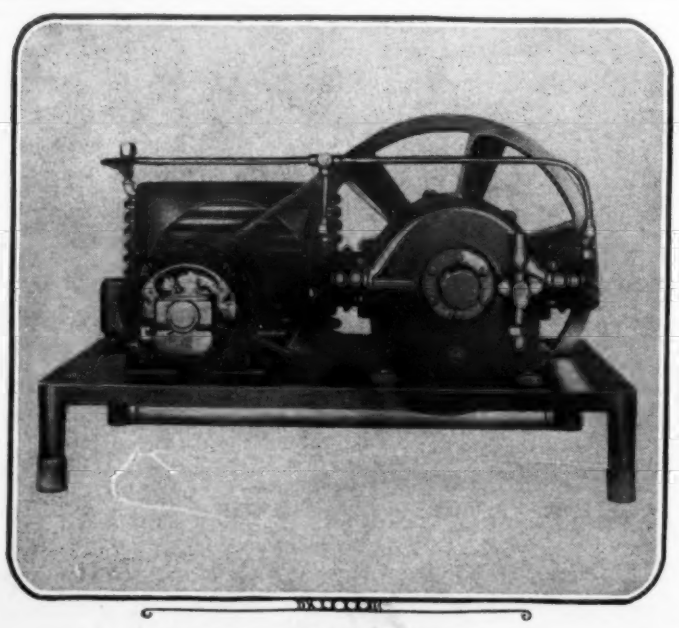
N

Narragansett Machine Co., Pawtucket, R. I.
Trade name.....**Chilrite**

High Side
Standard sizes—4. Compressor—Rotary gear.
Drive—Direct, rotary gear.
Seal—Revolving. Make—Cooke.
Motor—1/6 to ¾ hp. Control—Temperature.
Method of cooling—Air. Condenser—Fin tube.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—72 to 700 lbs.

Low Side
Standard sizes—18. Dry or flooded system.
Method of cooling—Direct or indirect.
Expansion valve—Diaphragm. Float valve—Low side.
Capacities—5 to 125 cu. ft.
Freezing trays—2 to 8. Ice cubes—54 to 144.

National Electric Refrigeration Corp.,
Scranton, Pa.



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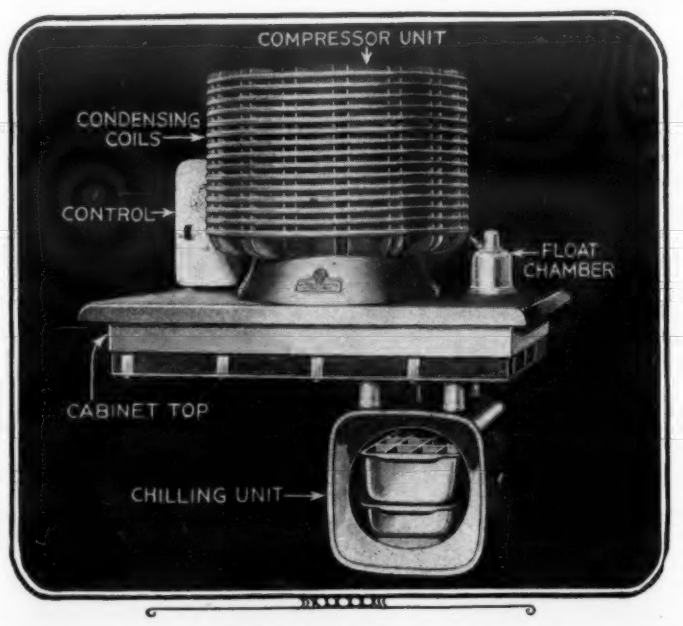
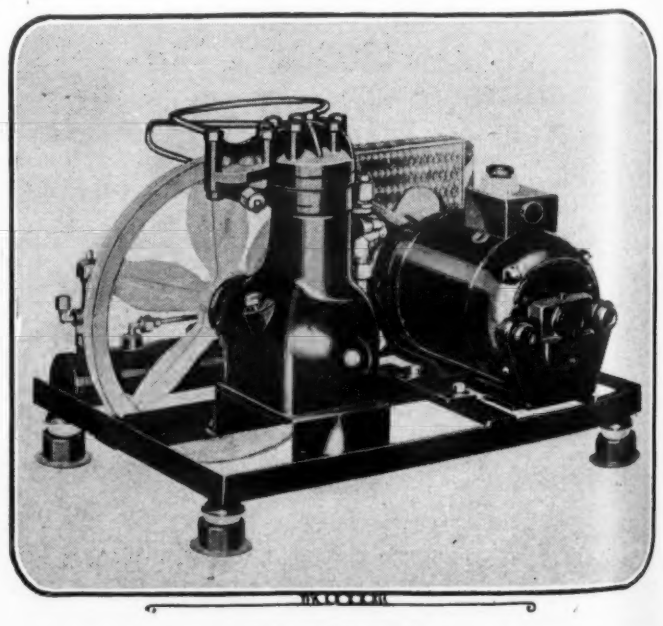
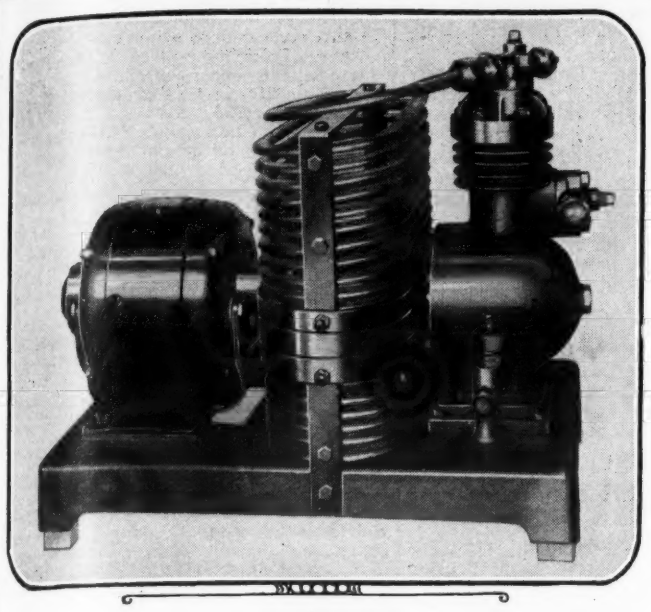


GENERAL ELECTRIC

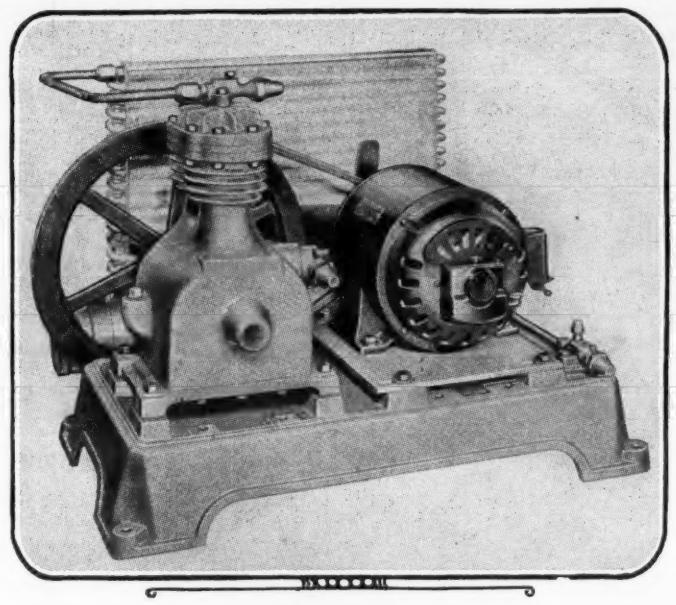


KELVINATOR

With Specifications of Equipment and Ranges of Sizes



KEOKUK



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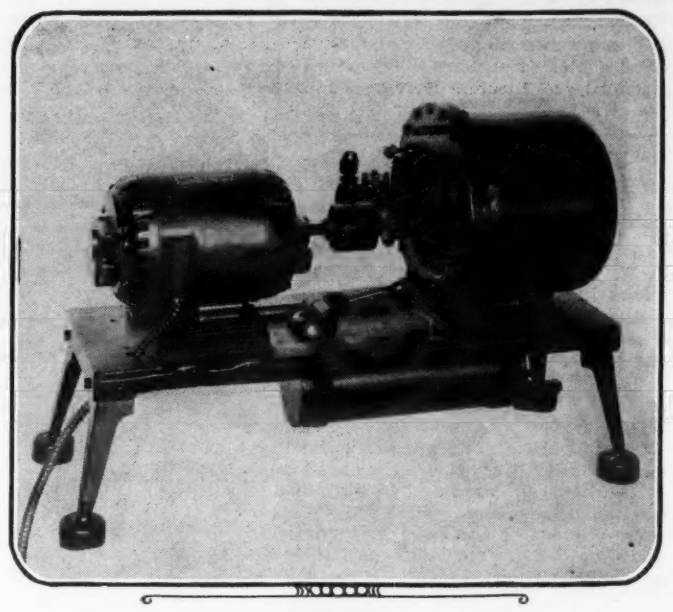


ROMESON

Norge Corp.
670 E. Woodbridge St., Detroit, Mich.
Trade name.....Norge

High Side

Standard sizes—9. Drive—Belt.
Compressor—Rotary. Seal—Pressure type.
Motor—1/6 to 1 hp.
Control—Pressure. Make—Penn.
Method of cooling—Air and water.
Condenser—Fin coil. Water valve—Pressure.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—100 to 1000 lbs.

Low Side.

Standard sizes—12. Flooded system.
Method of cooling—Direct. Float valve—Low Side.
Capacities—3.5 to 85 cu. ft.
Freezing trays—2 to 7. Ice cubes—20 to 189.

O

O'Keefe & Merritt Co.,
3700 Mines St., Los Angeles, Calif.

High Side

Standard sizes—2. Drive—Belt.
Compressor — Reciprocating. Seal — Bellows. Make—Bishop & Babcock.
Motor—1/6 to ⅓ hp. Make—Wagner, Century.
Control—Temperature. Make—Ranco.
Method of cooling—Air. Condenser—Radiator.
Refrigerant—Methyl chloride.
Capacities—125 to 250 lbs.

Low Side

Standard sizes—4. Dry system.
Method of cooling—Direct.
Expansion valve—Bellows. Make—American.
Capacities—2.5 to 12 cu. ft.
Freezing trays—2 to 8. Ice cubes—56 to 224.

P

Parker Ice Machine Co., San Bernardino, Calif.
Trade name.....Parker

High Side

Standard sizes—3. Drive—Belt.
Compressor—Reciprocating. Seal—Sylphon.
Motor ⅓ to 2 hp. Control—Pressure.
Method of cooling—Air and water.
Condenser—Radiator.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—100 to 1000 lbs.

Low Side

Dry or flooded system. Float valve—High side.
Method of cooling—Direct or indirect.
Expansion valve—Diaphragm.
Capacities—4 to 1000 cu. ft.
Freezing trays—1 to 9.

Peerless Ice Machine Co.,
515 W. 35th St., Chicago, Ill.
Trade name.....Peerless

High Side

Standard sizes—4. Drive—Belt.
Compressor — Reciprocating. Seal — Metallic packing.
Motor—2 to 15 hp. Make—Wagner, G. E.
Control — Pressure and temperature. Make — Penn and Mercoid.
Method of cooling—Water. Water valve—Pressure
Condenser—Galvanized steel submerged.
Capacities (ice melting)—1 to 10 tons.
Refrigerant—Methyl chloride and ammonia.

Low Side

Standard sizes—4. Dry or flooded system.
Method of cooling—Direct or indirect.
Expansion valve—Diaphragm. Make—Pimco.
Float valve—Low side. Make—Pimco.
Capacities—4 to 25 cu. ft.
Freezing trays—2 to 16. Ice cubes—24 to 448.

Perfection Stove Co., Cleveland, Ohio.
Trade name .....Superfex
Kerosene burning absorption unit for domestic cabinets and milk coolers. Hermetically sealed, non-automatic.

Phoenix Ice Machine Co.,
2711 Church St., Cleveland, Ohio.
Trade name.....Phoenix

High Side

Compressor—Reciprocating. Drive—Belt.
Motor—½ to 75 hp. Control—Temperature.
Method of cooling—Water.
Condenser—Shell and tube.
Refrigerant—Ammonia.
Capacities (ice melting)—500 lbs. to 50 tons.

R

Rauf Mfg. Co., Bogota, N. J.
Trade name.....Alpinice

High Side

Compressor—Reciprocating. Drive—V-belt.
Control—Temperature. Condenser—Fin tube.

Rice Products, Inc.,
315 Beaubien St., Detroit, Mich.
Trade name.....Rice

Romeson Mfg. Corp.,
First National Bank Bldg., Pittsburgh, Pa.
Trade name.....Romeson

High Side

Standard sizes—2. Compressor—Rotary.
Drive—Direct. Seal—Cooke.
Motor—¼ to 1 hp. Make—Wagner.
Control—Temperature. Make—American, Penn.
Method of cooling—Water.
Water valve—Pressure. Condenser—Plain tube.
Refrigerant—Sulphur dioxide.
Capacities—250 to 850 lbs.

Low Side

Flooded or dry system. Method of cooling—Direct.
Expansion valve—Bellows. Make—American.
Float valve—Low side. Make—American.
Capacities—150 to 700 cu. ft.
Freezing trays—3 to 30. Ice cubes—36 to 240.

S

Savage Arms Corp., Utica, N. Y.
Trade name.....Savage

High Side

Compressor—Mercury type. Drive—Friction.
Seal—Hermetic. Motor—¼ hp.
Control—Temperature. Condenser—Fin tube.
Method of cooling—Air.
Capacities—2 to 10 hole ice cream cabinets.

Low Side

Flooded system. Float valve—High side.
Method of cooling—Freezing jelly.

Servel Sales, Inc., Evansville, Ind.
Trade name.....Servel

High Side

Standard sizes—12. Drive—Belt.
Compressor — Reciprocating. Seal — Rotating sylphon.
Motor 1/6 to 1 hp. Make—Wagner, Century, General Electric and Emerson.
Control—Temperature and Pressure.
Method of cooling—Air and water.
Water valve—Pressure. Make—Penn.
Condenser—Radiator and shell types.
Refrigerant—Sulphur dioxide.
Capacities—125 to 1200 lbs.

Low Side

Standard sizes—23. Flooded system.
Method of cooling—Direct. Float valve—Low side.
Capacities (domestic)—4 to 22 cu. ft.
Freezing trays—3 to 16. Ice cubes—36 to 192.

Smith Ice Machine Co.,
655 Second Ave., New York, N. Y.
Trade name.....Smith

High Side

Standard sizes—6. Drive—Direct.
Compressor—Reciprocating. Seal—Metal.
Motor—¼ to 5 hp. Make—Star.
Control—Pressure. Make—Mercoid.
(*See top of next column*)

Method of cooling—Water. Water valve—Pressure.
Condenser—Fin coil with condensing chamber.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—200 to 4500 lbs.

Stevens, Will P.,
1634 Long Beach Ave., Los Angeles, Calif.
Trade name.....Stevens
Refrigerating machinery from 1 capacity and up.

Stewart Ice Machine Co.,
3631 Avalon Blvd., Los Angeles, Calif.

High Side

Standard sizes—6. Drive V-belt.
Compressor—Reciprocating. Seal—Oil. Make—J. C. B.
Motor—¼ to 7½ hp. Make—U. S., Wagner, Leland.
Control—Pressure. Make—Penn.
Method of cooling—Air and water.
Water valve—Pressure. Make—Safety, Penn.
Condenser—Shell and tube, fin coil.
Refrigerant—Ammonia and sulphur dioxide.
Capacities (ice melting)—50 lbs. to 4 tons.

Low Side

Flooded system. Method of cooling—Direct.
Expansion valves—Diaphragm of bellows type.
Make—Alco, American Radiator.
Float valve—Low or high side.

T

Triumph Ice Machine Co.,
110 E. 70th St., Cincinnati, Ohio.
Trade name.....Triumph

High Side

Compressor—Reciprocating. Drive—Direct or belt.
Seal—Fibrous packing. Control—Temperature.
Method of cooling—Water. Condenser—Shell and tube, double pipe and atmospheric.
Refrigerant—Ammonia.
Capacities (ice melting)—1 to 150 tons.

Low Side

Method of cooling—Direct or indirect.

Trupar Mfg. Co., 140 Davis, Dayton, Ohio.
Trade name.....Trupar

High Side

Standard sizes—6. Drive—V-belt.
Compressor — Reciprocating. Seal — Against vacuum.
Motor 1/6 to 1½ hp. Make—Master.
Control—Pressure. Condenser—Fin coil.
Method of cooling—Air and water.
Water valve—Pressure or electric. Make—American.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—75 to 1000 lbs.

Low Side

Standard sizes—5. Flooded system.
Method of cooling—Direct. Float valve—Low side.
Capacities—4 to 15 cu. ft. net.
Freezing trays—2 to 4. Ice cubes—56 to 112.

U

Universal Cooler Corp.,
18th & Howard Sts., Detroit, Mich.
Trade name.....Universal Cooler

High Side

Standard sizes—9. Drive—Belt.
Compressor—Reciprocating. Seal—Bellows.
Motor—1/6 to 1½ hp.. Make—Wagner.
Control—Pressure. Make—Penn.
Method of cooling—Air and water.
Water valve—Pressure. Make—Penn.
Condenser—Radiator.
Refrigerant—Methyl chloride.
Capacities—105 to 1200 lbs.

Low Side

Dry system. Method of cooling—Direct.
Expansion valve—Bellows. Make—American.
Freezing trays—2 to 9. Ice cubes—42 to 189.

V

Vilter Mfg. Co.,
935 Clinton St., Milwaukee, Wis.
Trare name.....Vilter

High Side

Drive—Belt and direct.
Control—Pressure and temperature.
Method of cooling—Water. Water valve—Pressure.
Condenser—Double pipe, shell and tube, and atmosphere.
Refrigerant—Ammonia, carbon dioxide and methyl chloride.
Capacities (ice melting)—1 ton up.

Low Side

Dry or flooded system. Float valve—Low side.
Method of cooling—Direct or indirect.
Expansion valve—Needle.

Voss Ice Machine Works,
230 E. 122nd St., New York, N. Y.

High Side

Compressor—Reciprocating. Drive—Belt, direct.
Method of cooling—Water. Motor—1 to 200 hp.
Condenser—Shell and tube, double pipe and atmosphere.
Refrigerant—Ammonia and carbon dioxide.
Capacities—¼ to 100 tons.

W

Warner Steel Products Co., Ottawa, Kans.
Trade name.....Sure Cold

High Side

Standard sizes—8. Drive—Belt.
Compressor—Reciprocating. Seal—Cooke Seal.
Motor—1/6 to 1½ hp. Make—Century.
Control—Pressure. Method of cooling—Air.
Condenser—Radiator type.
Refrigierant—Sulphur dioxide.
Capacitieis (ice melting)—25 to 800 lbs.

Low Side

Dry or flooded system. Float valve—Low side.
Method of cooling—Direct.
Freezing trays—2 to 8. Ice cubes—18 to 160.

Wayne Home Equipment Co.,
102 Glasgow Ave., Ft. Wayne, Ind.
Trade name.....Wayne

High Side

Standard sizes—5. Drive—Belt.
Compressor—Reciprocating. Seal—Sylphon.
Motor—1/6 to ⅓ hp. Make—Century.
Control—Pressure and temperature. Make—Penn.
Method of cooling—Air.
Condenser—Fin coil, radiator type.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—80 to 300 lbs.

Low Side

Standard sizes—5. Dry system.
Method of cooling—Direct.
Expansion valve—Bellows. Make—American.
Capacities—3½ to 75 cu. ft.
Freezing trays—2 to 6. Ice cubes—54 to 162.

Welsbach Company,
Essex & Ellis Sts., Gloucester, N. J.
Trade name.....Welsbach

High Side

Standard sizes—9. Drive—Belt.
Compressor—Reciprocating. Seal—Sylphon.
Motor—1/6 to 1½ hp. Control—Temperature.
Method of cooling—Air.
Condenser—Fin coil, radiator type.
Refrigerant—Ethyl chloride.
Capacities (ice melting)—125 to 1166 lbs.

Low Side

Standard sizes—10. Dry system.
Method of cooling—Direct or indirect.
Capacities—6 to 40 cu. ft.
Freezing trays—2 to 6. Ice cubes—36 to 126.

Whitehead Refrigeration Co., Division of Whitehead & Kales Co.,
3730 Woodward Ave., Detroit, Mich.
Trade name.....Whitehead

High Side

Standard sizes—1. Drive—Direct.
Compressor—Reciprocating. Seal—Sylphon.
Motor—1/8 to ¼ hp. Make—Emerson.
Control—Temperature. Make—Mercoid.
Method of cooling—Air. Condenser—Fin coil.
Refrigerant—Methyl chloride.
Capacity (ice melting)—75 lbs.

Low Side

Dry system. Method of cooling—Direct.
Capacities—5 to 10 cu. ft.
Freezing trays—4 to 8. Ice cubes—48 to 96.

Williams Oil-O-Matic Heating Corp.,
1201 East Bell St., Bloomington, Ill.
Trade name.....Ice-O-Matic

High Side

Standard sizes—5. Drive—Belt.
Compressor—Reciprocating
Seal—Bellows. Make—Time-O-Stat.
Motor—1/6 to 1½ hp. Make—Baldor, Leland.
Control—Pressure and temperature. Make—Penn. and Ranco.
Method of cooling—Air. Condenser—Fin coil.
Refrigerant—Methyl chloride.
Capacities (ice melting)—70 to 1200 lbs.

Low Side

Dry or flooded system.
Method of cooling—Direct.
Expansion valve—Bellows. Make—American.
Float valve—Low side. Maker—Fedders.
Capacities—4 to 1200 cu. ft.
Freezing trays—2 to 7. Ice cubes—20 to 216.

X

X. L. Refrigerating Co., Inc.,
1834 W. 59th St., Chicago, Ill.
Trade name.....X. L.

High Side

Compressor—Reciprocating. Drive—Belt.
Motor—1/6 to 15 hp. Seal—Oil.
Control—Pressure. Method of cooling—Water.
Condenser—Shell and tube. Water valve—Pressure.
Refrigerant—Methyl chloride.
Capacities (ice melting)—500 lbs to 10 tons.

Low Side

Flooded system. Method of cooling—Direct.
Float valve—Low side.
Freezing trays—2 to 4. Ice cubes—24 to 48.

Y

York Ice Machinery Corp., York, Pa.
Trade name.....York

High Side

Compressor—Reciprocating. Motor—1 hp. and up.
Method of cooling—Air and water.

Z

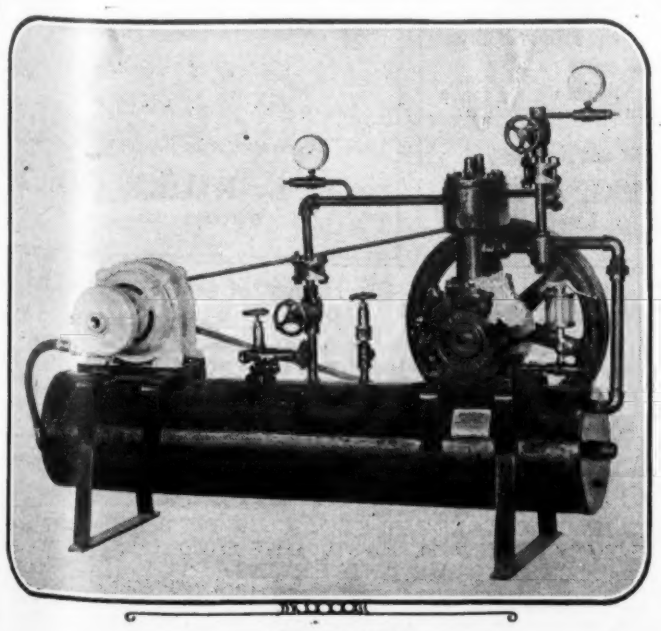
Zerozone Corp., 937 E. 95th St., Chicago, Ill.
Trade name ..... Zerozone

High Side

Standard sizes—11. Drive—V-belt.
Compressor—Reciprocating. Seal—Sylphon.
Motor—1/6 to 1½ hp. Make—Century.
Control—Pressure and temperature.
Method of cooling—Air and water.
Water valve—Pressure. Condenser—Radiator.
Refrigerant—Sulphur dioxide.
Capacities (ice melting)—90 to 1330 lbs.

Low Side

Standard sizes—41. Dry or flooded system.
Method of cooling—Direct or indirect.
Expansion valve—Diaphragm.
Float valve—Low side. Make—Fedders, Larkin.
Capacities—5 to 30 cu. ft.



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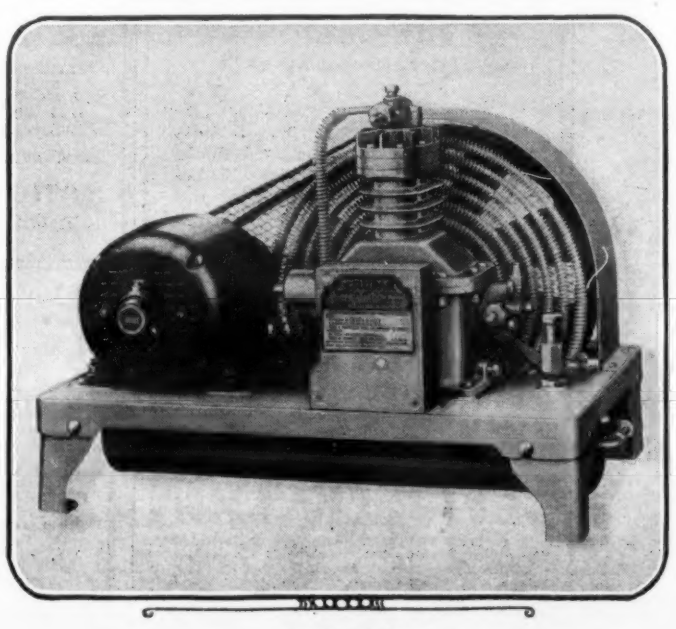

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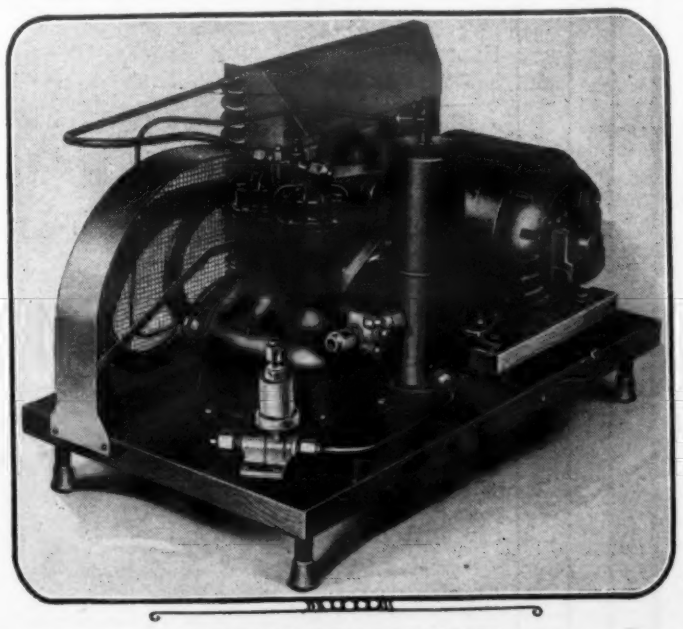

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